JOURNAL OF THE ROYAL HORTICULTURAL SOCIETY

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PAGE

The Secretary's Page 345

Invited Trials, 1953 348

Wisley in October 349

The Cultivation of Cacti and Succulent Plants. By Vera Higgins, F.L.S., V.M.H. 351

F. C. Puddle, V.M.H. By Lord Aberconway, C.B.E., LL.D., D.Sc., V.M.H. 360

Notes from Fellows:

The Story of the Venidio-Arctotis Seedlings. By A. P. Balfour. *Illustrated* 361

Lapeyrousia cruenta. By J. H. Harris 363

Peristrophe speciosa. By L. Maurice Mason . . . 363

Curtis's Botanical Magazine. *Illustrated* 364

Exhibition of Books from the Library of the Society of Herbalists. By Lanning Roper. *Illustrated* 369

The Forcing of Early Vegetables. By F. G. Potter. *Illustrated* 371

Clover Lawns. By W. F. W. Harding, B.Sc. (Hort.) . 377

The Influence of the Covering Soil on the Production of Witloof Chicory. By Allan A. Jackson. *Illustrated* . 380

Wisley Trials, 1952:

Delphiniums 382

Papaver nudicaule 383

Parsley 383

Plants to which Awards have been made in 1952 . . 384

Book Notes 386

Proceedings cv

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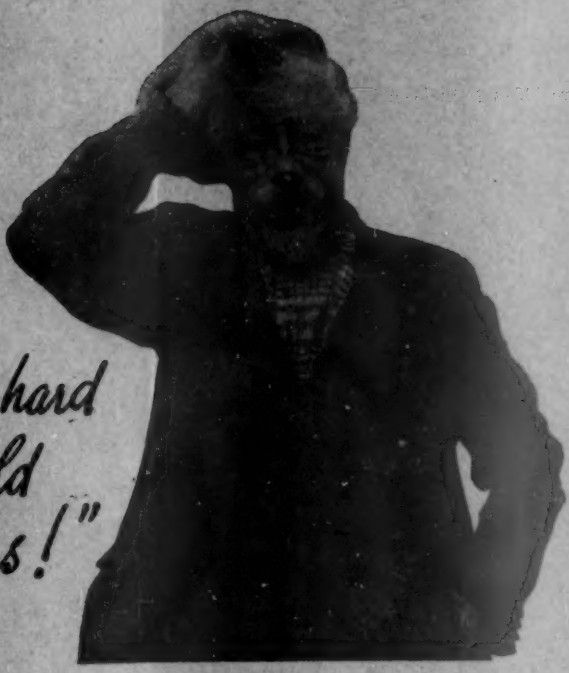

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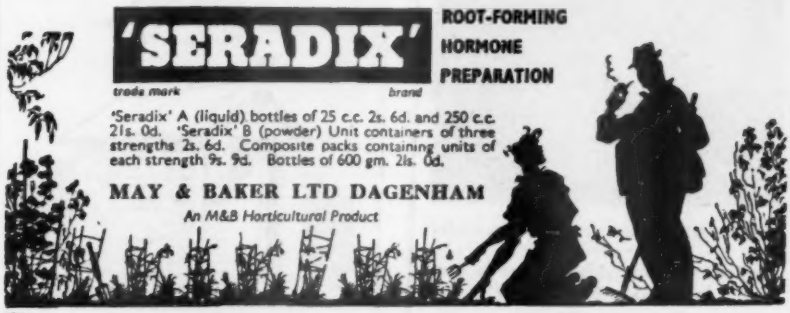
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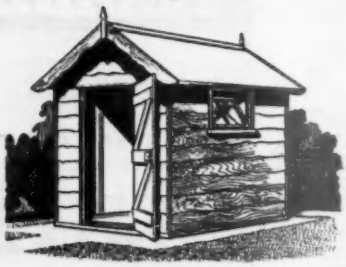

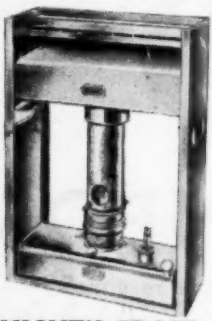

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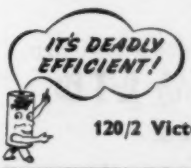

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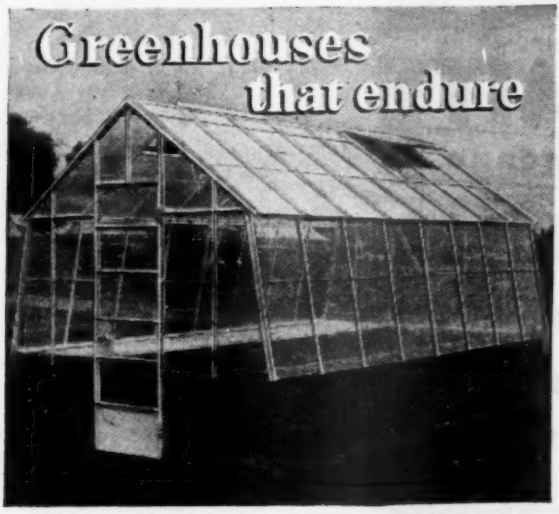

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THE PROCEEDINGS OF THE ROYAL HORTICULTURAL SOCIETY

GENERAL MEETINGS

JULY 8, 1952

FLORAL COMMITTEE B—Lord ABERCONWAY, C.B.E., LL.D., D.Sc., V.M.H., in the Chair, and eighteen other members present.

Awards Recommended:

Silver-gilt Flora Medal

To Messrs. R. Wallace & Co., Tunbridge Wells, for an exhibit of Lilies, Eremuri, Alstroemerias and other flowers.

Silver Flora Medal

To Messrs. Kibble & Clare, Ltd., Ascot, for an exhibit of rock garden and border plants.

Flora Medal

To Messrs. J. Cheal & Sons, Crawley, for an exhibit of flowering shrubs.
To Mr. K. W. Harle, Lower Basildon, for an exhibit of succulents.
To Messrs. Robinson, Eltham, for an exhibit of rock garden plants.
To Messrs. L. R. Russell, Ltd., Windlesham, for an exhibit of greenhouse foliage plants.

Banksian Medal

To Mr. C. Gilbert, Romford, for an exhibit of succulents.
To Messrs. Kew Topiary Nurseries, Ltd., Richmond, for an exhibit of clipped trees.

Letter of Appreciation

The Committee recommended that a letter of appreciation should be sent by the Council for an exhibit of Lilies flown from Strawberry Hill, Rhinebeck, New York.

First-class Certificate

To *Lilium* 'Bellingham Hybrid' var. 'Shuksan,' as a hardy flowering plant (votes 13 for, 0 against), from the Commissioners of Crown Lands, The Great Park, Windsor, Berks.

Award of Merit

To *Dianella ? intermedia* as an ornamental-fruiting plant for the cool greenhouse (votes 11 for, 2 against, subject to verification of the name), from the Director, John Innes Horticultural Institution, Bayfordbury, Herts.
To *Lilium* ('Shuksan' × *Parryi*) 'Sir Lancelot' as a hardy flowering plant (votes 11 for 0 against), from O. E. P. Wyatt, Esq., Maidwell Hall, Northampton.

Preliminary Commendation

To *Lilium* 'Dairymaid' (*nevadense* × *Parryi*) as a hardy flowering plant (votes 10 for, 0 against), from O. E. P. Wyatt, Esq., Maidwell Hall, Northampton.

Selected for Trial at Wisley

Hispidella hispanica, exhibited by Capt. Collingwood Ingram, Benenden, Kent.

Other Exhibits

Aconitum Napellus bicolor, exhibited by Mrs. Vera Higgins, 28 Northampton Road, Croydon.
Alangium platanifolium, exhibited by Sir Henry Price, Wakehurst Place, Ardingly.
Alangium platanifolium, *Desfontainea spinosa*, *Rhus Cotinus*, *R. Cotinus atropurpureus*, exhibited by G. L. Pilkington, Esq., Grayswood Hill, Haslemere.
Buddleia 'Hotblackiana' (*Davidi* × *Forrestii*), exhibited by H. S. Hotblack, Esq., Deaks, Cuckfield.
Clematis uncinata var. *retusa*, exhibited by Col. F. C. Stern, Highdown, Goring-by-Sea.
Hydrangea acuminata 'Bluebird,' exhibited by M. Haworth-Booth, Esq., Farall Nurseries, Haslemere.
Varieties of *Lilium* 'Bellingham Hybrid,' exhibited by The Director, R.H.S. Gardens, Wisley.
Lilium seedlings Nos. 3 and 5 ('Shuksan' × *Parryi*), exhibited by O. E. P. Wyatt, Esq., Northampton.
Lilium seedlings, exhibited by Lieut.-Colonel P. J. Dwyer, Ballsbridge, Dublin.
Lilium seedling, exhibited by W. Bentley, Esq., Quarrywood, Burghclere, Newbury.
Zephyranthes carinata, exhibited by Mrs. D. E. Saunders, Husseys, Green-Street-Green, Farnborough, Kent.

ORCHID COMMITTEE—Mr. C. CURTIS, M.B.E., F,L.S.. V.M.H. in the Chair, and twelve other members present.

Awards Recommended:

Cultural Commendation

To K. D. Morgenstern, Esq., 18 Lyttleton Road, N. 2, for an exhibit of *Odontioda* 'Duchess of York.'

JOINT BORDER CARNATION COMMITTEE—Mr. T. H. HAY, C.V.O. V.M.H., in the Chair, and thirteen other members present.

Selected for Trial at Wisley

Seedlings 2949 and 2148 both shown by Messrs. F. W. Goodfellow, Valley Nurseries, Aldridge.

Seedling No. 13 shown by Messrs. G. E. Toms, Appley Nurseries, Ryde, I.O.W.

Other Exhibits

Seedling Border Carnations all shown by Messrs. Allwood Bros., Ltd., Wivelsfield Nurseries, Haywards Heath, Sussex.

Aldridge Yellow (**A.M.** 1951) and Seedling Border Carnation both shown by Messrs. F. W. Goodfellow, Valley Nurseries, Aldridge.

Seedling Border Carnation shown by Messrs. G. E. Toms, Appley Nurseries, Ryde, I.O.W.

THE JOINT PERPETUAL-FLOWERING CARNATION COMMITTEE—Mr. C. J. HORWOOD, in the Chair, and nine other members present.

Awards Recommended:

Award of Merit

To Carnation 'Charles Allwood' as a Show flower (votes 9 for, 0 against). Raised and exhibited by Messrs. Allwood Bros., Ltd., Wivelsfield Nurseries, Haywards Heath, Sussex.

To Carnation 'Helena Allwood' as a Show flower (votes 9 for, 0 against). Raised and exhibited by Messrs. Allwood Bros., Ltd. Wivelsfield Nurseries, Haywards Heath, Sussex.

Preliminary Commendation

To Carnation 'Bailey's Masterpiece,' raised and exhibited by Mr. Steven Bailey, Eden Nurseries, Sway.

To Carnation 'Bailey's Apricot' raised and exhibited by Mr. Steven Bailey, Eden Nurseries, Sway.

Varieties To be seen again

Carnation 'Ernest Carter' raised and exhibited by E. R. Carter, Valhalla, Hartswood Road, Brentwood, Middlesex.

Seedling '52/7' raised and exhibited by Mr. E. A. Tickle, Oaklea, Oakwood Avenue, Purley, Surrey.

Other Exhibit

Carnation 'Loveliness' raised and exhibited by Mr. E. A. Tickle, Oaklea, Oakwood Avenue, Purley, Surrey.

JOINT DIANTHUS COMMITTEE—Mr. G. W. LEAK, in the Chair, and eight other members present.

Exhibits

Seedling Dianthus from H. Harvey, Esq., 1 Glentworth Terrace, Lostwithiel, Cornwall.

JOINT ROCK-GARDEN PLANT COMMITTEE—Col. F. C. STERN, O.B.E., M.C., F.L.S., V.M.H., in the Chair, and ten other members present.

Awards Recommended:

Award of Merit

To *Campanula arvatica* as a hardy flowering plant for the rock garden and alpine house (votes 9 for, 0 against) from F. M. Peacock, Esq., Lowlands Cottage, Tritton Avenue, Beddington, Surrey.

To *Origanum pulchrum* as a hardy flowering plant for the rock garden and alpine house (votes 8 for, 2 against), from The Director, R.H.S. Gardens, Wisley, Ripley, Surrey.

JOURNAL OF THE ROYAL HORTICULTURAL SOCIETY

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October 1952

THE SECRETARY'S PAGE

ANNOUNCEMENTS—OCTOBER AND NOVEMBER

Shows

TUESDAY, October 7 12.30 P.M. to 6 P.M.	Fortnightly Show.
WEDNESDAY, October 8 10 A.M. to 5 P.M.	Fruit and Vegetable Show.
TUESDAY, October 21 12 NOON to 6 P.M.	Fortnightly Show. Tree and Shrub Competition.
WEDNESDAY, October 22 10 A.M. to 5 P.M.	Floral Arrangement Competition for Professionals.
TUESDAY, November 4 12 NOON to 6 P.M.	Fortnightly Show. Floral Arrangement Competition for Amateurs.
WEDNESDAY, November 5 10 A.M. to 5 P.M.	British National Carnation Society's Competition.
TUESDAY, November 18 12 NOON to 6 P.M.	Fortnightly Show.
WEDNESDAY, November 19 10 A.M. to 5 P.M.	

British Beekeepers Association's National Honey Show will be held in the Old Hall, Vincent Square, and will be open as follows: THURSDAY, October 16, 10 A.M. to 8 P.M.; FRIDAY, October 17, 10 A.M. to 7 P.M.; SATURDAY, October 18, 10 A.M. to 6 P.M. The British Beekeepers Association extends a special invitation to Fellows of the Society. They will be admitted without charge on production of their Fellowship tickets. Admission to the public is *2s.* 6*d.*

Lectures

TUESDAY, October 7, at 3 P.M. "A Pomological Pilgrimage" by Sir RONALD HATTON, C.B.E., M.A., D.SC., F.R.S., V.M.H.

Lectures—*continued.*

TUESDAY, October 21, at 3 P.M. Masters Memorial Lecture, "Cytology and Horticulture," Part I, by COL. F. C. STERN, O.B.E., M.C., F.L.S., V.M.H.

TUESDAY, November 4, at 3 P.M. Masters Memorial Lecture, "Cytology and Horticulture," Part II, by COL. F. C. STERN, O.B.E., M.C., F.L.S., V.M.H.

Demonstrations at Wisley—The following demonstrations will be given at Wisley, that on the second day being in each case a repetition of that given on the first.

Vegetable Garden

October 1–2. Digging, Trenching, Manuring and Composting. (Commencing at 2 P.M.)

Fruit Garden

November 26–27. The Pruning of Fruit Trees. (Commencing at 11 A.M.)

Results of the Examination for the National Diploma in Horticulture—This is the most important of the examinations conducted by the Society, and is intended for the professional horticulturist. Candidates for the Examination must produce evidence of having followed the vocation of horticulture for specified periods; both the Intermediate and Final Examinations involve practical tests conducted at Wisley or elsewhere, as well as written work.

In 1952 there were 192 candidates for the Intermediate Examination, of whom 50 acquitted themselves sufficiently well to be allowed to take the Final Examination in due course. At the Final Examination there were 44 candidates, 11 obtaining the N.D.H. in the various Sections, as follows:—

Section I—*General Horticulture*

MR. J. M. EVANS
MR. E. G. GILBERT
MR. S. T. GRADY
MR. R. LAMOND
MR. M. RICHARDS

Section II—*General Commercial Horticulture*

MR. N. MOSS
MR. A. E. WATERFIELD

Section III—*Fruit Crop Husbandry*

MR. E. G. COKER
MR. R. CROPLEY
MR. R. G. NORMAN

Section VIII—*Horticulture in Public Parks*

MR. S. A. J. OLDHAM

Three candidates entered for the Examination for the National Diploma in Horticulture with Honours. MR. J. G. S. MARSHALL satisfied the examiners.

Proposed Elizabethan Garden in North Carolina—We have been asked to bring to the notice of our Fellows an interesting project

being carried out in North Carolina by a number of organizations, including the Garden Club of North Carolina. It is proposed to create an Elizabethan Garden, honouring our present Queen Elizabeth and in memory of Queen Elizabeth I, who was the reigning Sovereign when the first English settlers landed in North Carolina in 1584. The Garden will occupy eventually two acres and will form a living memorial to North Carolina's earliest colonists.

The Gardeners' Royal Benevolent Institution—This organization has recently purchased a residential home which will be opened this month for aged gardeners who have fallen on hard times. The Margaret Champneys Home, conveniently located at Horton, near Slough, is admirably suited, for it is a large and comfortable old house standing in five acres of ground with flower, fruit and vegetable gardens (Fig. 139). An appeal for £20,000 to complete the purchase, to equip and partially to endow the home has been made. All Fellows interested in this worthy cause should send their contributions direct to The Secretary of The Gardeners' Royal Benevolent Institution, 92 Victoria Street, London, S.W.1.

Publications—*Botanical Magazine.* Part II, Volume 169 of the *Botanical Magazine* will be published in October. This contains a number of plants of special interest to horticulturists; these are *Buddleia heliophila*, *Cyclamen Rohlfsianum*, *Deutzia* × *rosea*, *Eranthis* × *Tubergenii*, *Gentiana asclepiadea*, *Gaultheria semi-infera*, *Moraea gigandra*, *Muscari Tubergenianum*, *Pinus nigra* var. *leucodermis*, *Prinsepia utilis*, *Rhododendron Macabeanum*. An article on the *Magazine* together with a specimen of the plates will be found later in the JOURNAL. It is hoped that as many Fellows as possible will support the *Magazine*. Copies of the first part of this volume of the *Magazine* are still available and also copies of parts of other volumes the New Series which started with Vol. 165. It is suggested that a subscription to the *Botanical Magazine* at its new reduced price would make a most acceptable Christmas present to keen gardeners and in order that the continuance of this most important *Magazine* may be assured, it is hoped that Fellows will give it the necessary support by becoming subscribers or giving subscriptions to their friends. Annual subscription £2; U.S.A. $5.75. Subscription for complete volume, 4 parts £4; U.S.A. $11.50.

The Journeys and Plant Introductions of George Forrest—It is hoped that this volume will be ready in October or early November. GEORGE FORREST was outstanding in the number of important plants which were introduced by him. This volume contains a tribute to the collector by SIR WILLIAM WRIGHT SMITH, an account of his journeys in Tibet and Western China by MR. E. H. M. COX, followed by chapters on his more important introductions: Rhododendrons by DR. J. MACQUEEN COWAN, Primulas by DR. H. R. FLETCHER and Gentians by MR. DAVID WILKIE. Other genera are described by members of the staff of the Royal Botanic Garden, Edinburgh. The book is illustrated with a wide selection of unusual photographs, many taken in the field by FORREST himself. The book is published jointly with the Oxford University Press, price 30*s.*, postage and packing 1*s.*; U.S.A. $5, postage and packing inclusive.

The Fruit Year Book, 1953—This volume contains a special section of articles on fruit-growing overseas; MR. T. NEAME describes his world

tour of fruit research stations, COUNT KNUTH writes on his recent visit to the South-American fruit-growing areas, DR. HERRERO writes on fruit-growing in Spain and MR. RAYMOND BUSH writes on fruit-growing in Jamaica. A new method of training old espalier Apples by festoons is described by MAJOR HOG. There are also articles on Blueberries, a new method of training Raspberries, Grapes out of doors and many other aspects of fruit-growing. Size medium 8vo. 15*s*., postage and packing 9*d*.; U.S.A. $2.40.

Trials at Wisley—It is regretted that the invited Trial of Schizanthus, scheduled to be held at Wisley next year, has had to be postponed. It is now proposed that the Trial shall be held in 1954. A complete list of Trials for that year is published on page 349.

INVITED TRIALS, 1953

The Royal Horticultural Society will carry out during the season 1953 the following invited trials :

Flowers

Petunia (sufficient seed to raise 60 plants of each variety).
Linaria (½ oz. of seed of each variety).

Vegetables

Brussels Sprouts (½ oz. of seed of each variety).
Celery, golden self-blanching varieties only, not green-stemmed varieties (¼ oz. of seed of each variety).
Endive, Leek } ½ oz. of seed of each variety.
Spinach, prickly and round-seeded varieties (1 oz. of seed of each variety).

Conditions for Entry to Trials

1. All entries must be made on the appropriate form obtainable from The Director, The Royal Horticultural Society's Gardens, Wisley, Ripley, Woking, Surrey.

2. The entrant must certify on the form either :

(*a*) that the variety or strain has been raised or developed by him;
or (*b*) that the variety or strain was, or is about to be, introduced by him to British commerce ;

and the entrant must also supply sufficient particulars of the history of the variety or strain to substantiate his certificate, but such particulars will not be published by the Society without the sender's consent.

3. Entry forms to be received at Wisley not later than December 31, 1952. (Please note that revised forms are now available, and old forms should not be used.)

4. Seeds and plants should not be sent until the entrant receives notification that his entries have been accepted.

5. For each entry accepted a fee of 10*s.* will be charged.

6. No firm or person may send more than 10 entries of any one kind of plant.

Calendar of Invited Trials

1953	1954	1955
	Flowers	
Aubrieta	Chrysanthemum (Annual)	Begonia
Auricula, alpine	Digitalis	Canterbury Bells
Campanula persicifolia	Mignonette	Cosmea, sown outdoors
Linaria	Primula malacoides	Freesia, from seed
Petunia	,, sinensis	*Iris spuria*
Viola	new varieties introduced since 1949–50	Larkspur, autumn sown
	Schizanthus	Zinnia, sown outdoors
	Stocks, summer flowering	
	Sweet William	
	Vegetables	
Brussels Sprouts	Cabbage, Christmas Drumhead and successional varieties	Beans, French
Celery (golden self-blanching varieties only)	Lettuce (over-wintering types)	Beet, round varieties
Endive	Parsnip	Cabbage, spring sown
Leek	Radish	Marrows
Onion (retrial from 1951) autumn sown	Savoys	Sweet Corn (sown outdoors)
Spinach		

NOTE.—The years refer to the year in which the trial is judged. The calendar for 1954 and 1955 is provisional and may be altered at a later date.

WISLEY IN OCTOBER

OCTOBER is a delightful month in which to visit the Gardens, for the autumn colours are at their best and can transform the otherwise most insignificant shrub into something of quite breath-taking beauty, while the soft autumn sunlight and lengthening shadows impart an air of tranquillity to the scene.

The Azalea Garden is a convenient place to begin a tour of the Gardens, for the beds have been established for many years and run through the whole repertoire of autumn tints, which are enhanced by drifts of lilac Colchicums and, at the far end, scarlet-berried Viburnums, notably the upright panicles of *Viburnum dilatatum* and, in contrast, the pendent-fruited *V. hupehense.*

On entering the Pinetum, further drifts of Colchicums will be seen, shrubby yellow *Aesculus parviflora* and the brilliant purple Wig Tree, *Rhus Cotinus,* which takes its name from the feathery-haired inflorescence. Farther on is another Sumach, *Rhus radicans,* whose leaves have turned to a beautiful orange-scarlet. In North America where it is widespread, it is looked upon as a severe nuisance as the sap produces

painful blisters on some people's skin. The juice has another interesting property, for it makes one of the best marking inks available.

In Howard's Field Rose species, Cotoneasters, Sorbus, Viburnums, Dogwoods and Spindleberries are conspicuous in fruit. In Seven Acres on the other hand these are many plants whose leaves colour brilliantly in the autumn. *Euonymus alatus* var. *apterus*, which has brilliant rosy-scarlet leaves, differs from the type species in the absence from the stem of the curious corky wings. *Liquidambar styraciflua*, the Sweet Gum, is a native of the eastern United States where it reaches a height of 150 feet and colours most brilliantly. In England it seldom reaches half that height and individual trees vary greatly as to colour, although the young specimen here is very fine. The wood is imported under the name of satin walnut. *Parrotia persica* is not as frequently planted as its charm and interest entitle it to be, for if trained up in the early stages it forms a sizable deciduous tree with a stout trunk from which the bark peels as in a Plane, whilst the Beech-like leaves change from shades of pink to yellow and eventually bronze. It was named after the German F. W. PARROT, who made the first ascent of Mt. Ararat, in 1829. The Japanese cherries planted here give a background of golden tints, but the leaves of the beautiful *Prunus Sargentii*, although not persisting very long, turn a brilliant crimson-scarlet.

In the Wild Garden plants to note are the North American *Oxydendrum arboreum* or Sorrel Tree, so called because of the acid-tasting leaves, and from the same location *Cyrilla racemiflora*, a curious monotypic genus, only the shrubby deciduous form from the northern limits of its distribution being hardy. Beneath the trees are drifts of *Cyclamen neapolitanum* and *Crocus nudiflorus*. When planting the first of these two, care must be taken to put the corms in the right way up as in normal circumstances they produce roots from the upper surface, so if some are still adhering to the tuber it is easy to be misled.

The most striking plant in flower on the Rock Garden is *Kniphofia Galpinii*, a small graceful species with slender orange "Pokers." *Zauschneria californica* is another colourful plant having bright scarlet tubular flowers set among grey-green leaves. The foot-high stems are woody at the base and are cut back every winter although the plant itself is perfectly hardy in a well-drained sandy situation. Prussian blue is the colour of the flowers of *Ceratostigma plumbaginoides* and as they fade the leaves of this small sub-shrub change to crimson. It was first called *Plumbago Larpentae* but the minute glandular processes that grow like horns out of the arms of the stigmas distinguish it from this genus.

Colchicum autumnale alboplenum, surprisingly rather a scarce plant, has flowers with white linear segments and with a faint lilac flush at the heart; like most double forms the flowers are longer lasting than the single. There is also a Chinese species of Saxifraga, *S. Fortunei*, which has a thick fleshy rootstock, broad glossy leaves, and twelve-inch spikes of white flowers with the lowest petal considerably elongated. *Crocus Salzmannii* represents the autumn-flowering Crocuses; it has the largest corm in the genus and is correspondingly attractive to mice. The flowers are pale lilac and it is perfectly hardy although coming from

southern Spain and North Africa. On the Alpine Meadow are patches of *C. speciosus*, the finest of the autumn-flowering group and one which spreads quickly by means of cormlets and has lilac flowers veined with blue, *Cyclamen neapolitanum*, and a group of Japanese Maples with foliage of brilliant flame and crimson shades.

Outside the Alpine House the beds of Gazanias will continue to flower until cut by frost, whilst inside the house remain pans of *Cyclamen neapolitanum*, the white "everlasting" flowers of *Helichrysum frigidum*, hop-like clusters of pinkish bracts on *Amaracus hybridus* and brilliant ruby-leafed *Vaccinium arctostaphyloides*. Several succulent-leafed plants are changing colour and add further touches of interest; the crimson *Sedum cauticola* contrasts with the blue-grey of *Cotyledon Purpusii* and with the wizened brown branches and dense tufts of green leaves which comprise *Sedum multiceps*, while *S. Stahlii* goes to red-brown and *S. Sieboldii variegatum* a pretty deep rose colour.

On Battleston Hill the autumn colours are most attractive, made up mainly of clear yellow Magnolias, yellow and scarlet Azaleas, Cherries and species of Sorbus against a background of Chestnuts, Scots Pines and Birches which were carefully retained when this part of the garden was made.

A broad grass walk leads to the Floral Trial Grounds, where, until the frosts, Dahlias, Michaelmas Daisies and Korean Chrysanthemums will be flowering, and from here a Lavender-bordered path takes one towards the greenhouses and so past a rock bank, the lower bays of which should be a brilliant azure blue with the trumpets of *Gentiana sino-ornata*.

The Half Hardy House, Stove House and Temperate House are all well stocked with a great variety of plants. For instance in the Stove House many Orchids are coming into flower and in another house a collection of Fuchsias already is in bloom. Outside the Laboratory, in the tanks, the Water-lilies, *Nymphaea* 'Sunrise' and 'Escarboucle' will be particularly fine until damaged by frost.

THE CULTIVATION OF CACTI AND SUCCULENT PLANTS

Vera Higgins, F.L.S., V.M.H.

(*Lecture given on June* 10, 1952; DR. G. TAYLOR *in the Chair*)

BEFORE considering methods of cultivation it is desirable to know the conditions under which succulent plants grow in nature. The fact that succulence is an adaptation to unusually dry conditions is well known, but it is not always realized that where the drought is continuous throughout the year succulent plants are rarely found; if any plants are able to grow in such extreme conditions they will be xerophytes but not of the succulent type.

It is not, however, easy to define a desert; shortage of water is

the most obvious characteristic, yet there are desert regions where the annual rainfall is as much as 20 inches. The average rainfall for the London area is about 25 inches, but the distinction between the two types of climate lies in the period during which rain occurs. In this country it is fairly evenly distributed throughout the year, the air always contains moisture and the soil never dries out completely. But in the desert regions the rainy period is confined to a few weeks only; for the rest of the year there is little or no precipitation and both air and soil become extremely dry. These are the conditions in which plants store water in their tissues so that they can exist between the periods of rain.

In dry regions, where there is little water vapour in the air, clouds seldom form and the heat of the unscreened sunlight is intense, but when darkness comes there is a sharp fall in temperature, resulting in the deposition of dew. In some areas where rain falls very seldom, perhaps not for two or three years on end, dew may be an important factor in the life of the plants growing there. Another source of supply is from mists blown in from the sea; along the extremely dry coast of S.W. Africa the succulent flora only extends inland as far as the sea mists are blown; similarly in Bolivia and Peru, the rainfall is insignificant along parts of the coastal range and Cacti are found only where the moist fog from the sea penetrates.

In temperate climates rocks are weathered by the action of rain and frost when they break down to form fine soils such as clay, but where the weathering is due to wind and sun, as in deserts, the particles are larger and the sand thus produced does not bind easily and in many cases is mobile. This sand, however, does not consist of pure silica like the washed sands used in horticulture but may have a high salt content, since there is little rain to leach it, but the humus content will be very low.

When growing desert plants in such a different climate as that of England, it is not possible to reproduce the natural conditions. The chief obstacle is the low light intensity and absence of direct sunlight for considerable periods; this is insuperable, and so, too, is the amount of moisture present in the air even in summer. The treatment given to succulent plants in cultivation must therefore be a compromise. But the factor that induces plants to store water is the alternation of wet and dry periods; this *can* be imitated in cultivation and it is most important that the resting period should be observed. The rigor of the dry period depends on the degree of succulence present, and the time of year when the period of rest should be given will vary for different species, depending largely on the part of the world from which they come.

Succulent plants occur in some twenty-four plant families and it should be realized that the succulent habit is superimposed on the characteristics of the family to which the plant belongs. The superficial resemblance between plants of different families living in different parts of the world is due to their adaptation to similar environments; in stem or leaf they may look alike, but the internal structure, and especially the structure of the flower which is the part least likely to be affected by external conditions, will be distinct.

The name "Cactus" is often applied to all types of succulent plant; this, however, is incorrect; it should be reserved for species belonging to the *Cactaceae*, a very large plant family found wild only in the American continent and characterized by having succulent stems, generally without leaves but often spiny. Another well-known family, *Crassulaceae*, also consists of a large number of species, all of which are more or less succulent; some, such as the Echeverias, occur in America, but the greater number of them are found in South Africa, where a varied and interesting succulent flora has developed, especially in the desert regions of the Karroo and Namaqualand. The genus Mesembryanthemum, now raised to the rank of a family, consists of succulent species, many of which show a high degree of adaptation. Among the other families in which some, but not all, of the species are succulent are *Liliaceae* (Aloe, Haworthia, Gasteria, etc.), *Compositae* (Senecio, Kleinia, Othonna, etc.) *Euphorbiaceae*, *Asclepiadaceae* (Stapelia, Huernia, Duvalia, Ceropegia, etc.), *Geraniaceae*, *Vitaceae* (Cissus), *Portulacaceae* (Anacampseros, etc.) and a few more which may be known to growers in this country who specialize in unusual types.

This brief survey will have given some idea of the conditions under which plants adopt the succulent habit. The daytime temperatures may be very high but the steep fall in temperature after dark may sometimes be so low that frost occurs and in some high mountain ranges of America the Cacti are even covered with snow. But this does not mean that such plants will be hardy in England; other conditions vary, especially the moisture in the air. Even when the plants are given no water in the winter months the air in this country will always contain a considerable amount of moisture which, with a sudden fall in temperature, would be deposited on the plants and liable to set up rot. The experiment of growing Cacti out of doors has been tried and a few kinds, chiefly Opuntias, have been kept alive for a number of years at the Cambridge Botanic Gardens, at Kew and at other places; in most cases they have been planted against the protecting wall of a greenhouse, not in open borders. The method cannot be used for many types of succulent plant and should be regarded as an interesting experiment rather than a practical proposition. Planting out of doors during the summer is very beneficial but to grow a collection of succulent plants really well they must be protected from frost and the best place is in a greenhouse which need not be of any special type provided that it is in as light a position as possible and that plenty of ventilation can be given. Arrangements should be made for artificial heating, at least during severe weather, but a high temperature is neither required nor desirable; 40–45° F. is sufficient for most succulent plants. It is usual to grow the plants in pots arranged on the staging, or the staging can be replaced by a well-drained bed where the freer root run makes the plants grow really well, but there are difficulties in this method; for instance, some plants will grow faster than others and tend to overcrowd their neighbours; also it is not easy to regulate the watering in different parts of the bed where some plants may need to be rested while others are in full growth.

If a greenhouse is not available it is quite possible to grow succulent

plants in a dwelling-house, provided a light position is chosen. The temperature of a living-room may be rather high for them and the air very dry, in which case it would be advisable to give a little water during the winter even to plants which are being rested, to prevent them shrivelling too much. For plants that make no growth in winter and so need no water during that period, storage in an airy spare room is suitable, but putting them in a cellar, which has been advocated, is seldom satisfactory as the air is generally rather dank, the temperature low all the time and, most serious of all, there is little light; even when resting the plants should not be in the dark.

The most usual method of growing Cacti and other succulent plants, then, is in pots. A number of fancy pots are on the market, some glazed, some made of glass or plastic, but the old-fashioned red clay pot, well-shaped and well-fired so that it is porous, is much the best, especially for plants which are particularly sensitive to excess moisture in the soil as are the plants of the desert. It is essential that the pots should be clean; new pots should be soaked before use and old ones thoroughly scrubbed before being used again.

It is most important, for good cultivation, that there should be a drainage hole at the bottom; Cacti and especially ornamental Cactus gardens are sometimes grown in bowls without drainage holes. If given a layer of coarse charcoal at the bottom, plants so grown will endure for a considerable time but are unlikely to grow really well; rare species and specimens which are much prized should not be risked in undrained pots. The hole should be covered, but not closed, by a curved crock (or a disk of perforated zinc, if preferred) to prevent the soil washing through; over this is added a layer of smaller broken crocks to a depth of about a quarter the height of the pot. Above this, the plant surrounded by the potting compost is placed.

The size of the pot chosen is of some importance for, if it is too big, there will be a good deal of soil through which the roots have not penetrated and this may not keep in good condition. On the other hand, if the pot is too small the plant will soon starve. It has often been said that Cacti flower best when pot-bound but I doubt if there is any proof of this. As a general rule succulent plants should be repotted when the roots have well filled the pot, or when the plant itself is extending over the rim. Young plants need repotting at least once a year; large old specimens can be left for several years without attention.

With regard to the potting compost to be used, the chief requirements are that it should contain sufficient nourishment for good growth and be sufficiently porous so that there is no chance of it becoming water-logged and sour. A good loam will provide the nutriment required and coarse sand will keep the soil open; other ingredients sometimes recommended are granulated peat, which is an inert, water-holding material, broken brick and old mortar rubble. For those who prefer to make up their own potting soil a good general compost would consist of loam, coarse sand and a little granulated peat; some of the less succulent types can have humus, in the form of leaf-mould, added, but this is inadvisable for the highly succulent kinds. Those who have not the facilities for storing the various materials required will find the potting

compost recommended by the John Innes Horticultural Institution very suitable if extra coarse sand is added.

The use of chemical fertilisers is not advisable; bone meal, which is slow acting, will do no harm, but organic fertilisers, such as horse or cow manure, are best avoided; if used for such plants as Epiphyllums which, though slightly succulent, are really epiphytes, it should be old and well weathered.

A clean, properly crocked pot and a supply of suitable soil having been obtained, the satisfactory potting of the plant should present no great difficulty. The plant should be carefully removed from the old pot, the old soil knocked off and any dead or damaged roots cut away; the base of the plant should be cleaned by the removal of dead leaves or dry skin, care being taken to see that no pests, such as mealy bugs, are present as these are sometimes found round the collar. The plant is then held in the pot in the position it is to occupy and soil poured in gradually round it; a small blunt stick is useful to work the soil among the roots which should be spread out as evenly as possible. When nearly full, the pot can be bumped gently to settle the soil, which should be pressed down but not rammed hard. The top layer is then put on and tidied, and the plant should now be quite firm. Tall plants may need staking and it is a good plan to put in the stake before the potting is quite completed. Very spiny plants are not always easy to handle; some people use thick gloves or, better still, a glove on the left hand leaving the right hand free to do the work; the disadvantage is that, if the spines break off into or penetrate the glove, one is no better off. A more satisfactory method is to fold a newspaper into a narrow strip, put this round the plant and use the free ends as a handle. It is not pleasant to be pricked or to have spines left in one's fingers, but it is not dangerous; I do not know of any succulent plant which has poisonous spines. Certain kinds of Euphorbia have a poisonous milk which exudes when the skin is broken; care should be taken not to get this on the hands more than necessary and to wash it off as soon as possible. The most unpleasant things to handle are the Opuntias which have, at the base of the spines, tufts of barbed bristles; these very easily become detached and equally easily penetrate one's skin; owing to the barbs, however, they are by no means easy to get out again.

The last operation in the potting process is the labelling; if the previous label is in good condition it can be used again, but if the name is not clearly readable, then it should be rewritten or a new label used. The type of label is a matter of personal choice; ivorine labels which can be written on with an ordinary pencil are long lasting; if the material is bought as strip, the labels can be cut to any required length and are reasonably cheap. The most permanent and least conspicuous labels are those made of lead on which the names can be impressed by a special machine, but these are rather more expensive.

The time of year at which repotting is undertaken depends on the growing period of the plant; during the resting period they should not be disturbed, unless the plant is obviously in bad condition. In this country it is customary to rest the true Cacti from October to March; repotting can be done as soon as growth has begun but the kinds that

flower early are better left till later: June and July would be suitable months but not later than August, so that the roots can get settled into the new soil before the resting period.

Plants which come from the southern hemisphere, especially those from South Africa, may grow during our autumn and winter and are generally unwilling to change their normal season when imported; these plants should never be repotted when at rest, only when the roots are active. Plants such as the Aloes and Haworthias begin to make new roots towards the end of summer and can be repotted at this time; they should not be left in the same pot for more than two years since a large part of the old root dies annually and may make the soil sour if not removed. Many of the Senecios and Kleinias also grow in the autumn and are best repotted at this time of year. It must not be assumed that all plants from South Africa prefer to grow in the winter here; they have different growing periods in their native country depending on the areas from which they come; in some parts the chief rainfall occurs in summer but in others the winter rains are the heaviest.

The importance of the resting period in the life-cycle of a succulent plant has been emphasized. The Cacti present little difficulty and with many plants which are only slightly succulent, like some of the Crassulas and the shrubby Mesembryanthemums, for instance, a reduction in the amount of water given when the plant is not growing actively is sufficient. But for those kinds which are highly adapted, the period during which they receive no water at all must be properly timed to get the best results. Amongst the extremely succulent Mesembryanthemums, genera well known to collectors are Lithops, Conophytum, Argyroderma and Pleiospilos; these all want a complete rest of several months annually; if they are watered continuously they will not remain true to type. In the genera mentioned the plant consists of only one pair of leaves closely joined at the base or, in the case of Lithops and Conophytum, fused together to form a top-shaped body. The pair of leaves dies annually and is replaced by a new pair. There should never be more than one pair of leaves growing at a time, yet it is not uncommon in cultivation to see the new pair of leaves growing freely before the old leaves have dried up; this is due to watering at the wrong time. The new leaves should develop at the expense of the old ones and all the reserve material should pass from the old into the new leaves before water is given freely. It is difficult to give exact dates for the resting periods and a good grower will learn to watch the plants individually and not begin to give water until they really need it. As a rough guide, Lithops should get no water from December or January until about May. The Conophytums are rested for a little longer, until July. Pleiospilos begin to grow about August; the different species of Argyroderma vary in the time of year at which growth is most active, depending on the area from which they come. The best guide is the appearance of the plants themselves; as growth slows down the leaves lose their bright colour, become dull and begin to shrivel; then no more water should be given till the old leaves are reduced to a dry skin. If this type of succulent plant is properly treated, most of them will flower annually, but if they are watered too soon the bud formation which goes

on within the plant during the period of rest may not have been completed.

Watering is one of the most important operations in gardening and particularly with Cacti and other succulent plants. It is better to give a good amount at one time and wait till the soil begins to dry before giving more rather than to pour in driblets at frequent intervals. When in full growth most succulents require a fair amount of water; in hot weather they may need it every day. It is better to pour the water round the plant rather than over it, but this is only possible where there is a small collection of plants which can be dealt with individually. With a large collection overhead watering cannot always be avoided; it does no harm for plants in full growth to be washed in this way and may even discourage such pests as red spider; the danger of this method lies in the fact that, owing to the waxy surface of many succulents, the water tends to stand in globules which may act as lenses under a bright sun and cause burning. Plants which have been rested should be watered individually until it is certain that they are responding; then soaking till the surface of the soil becomes moist is a good way of ensuring that the contents of the pot are evenly wet after having been dried out. In hot weather little damage will be done by overhead watering in the evening, provided the pots are well-drained, but in cloudy weather, especially if it lasts for some days, more care should be taken. In winter, even if artificial heat is provided, there should not be much excess water in the greenhouse and such plants as need water should be given it in the pot and not splashed about the staging and floor; a sudden drop in temperature is much more dangerous if the air is very moist as it causes condensation on the plants themselves. The watering of newly potted plants depends on the state of the plant and of the soil which has been used; if the roots of the plant are healthy and the soil used has been on the dry side a soak from below will help to settle the soil, but no more water need be given for a few days. If the roots have been found to be unhealthy and it has been necessary to cut them back severely, then the newly potted plant should be kept on the dry side for a time.

Ventilation is important; air should be given whenever possible; in summer the roof ventilators can be freely opened all day and left open on warm nights. In winter it is advisable to open at least one ventilator for an hour or two whenever possible and the only time the greenhouse should be kept tightly closed is during foggy weather. The ventilation of a living-room is usually arranged for the benefit of the inhabitants rather than of the plants; in summer it is sometimes possible to put the plants out on a wide window sill or veranda, and they will benefit by the fresh air and sunshine.

The propagation of Cacti and succulent plants is always interesting and not generally difficult; the chief methods are by seed, by cuttings or by grafting.

Seeds can sometimes be obtained from the native countries to which the plants belong and, if collected in the wild, should be reliable. Many plants produce seed in this country which can be collected and sown but, if other plants of the same genus have been flowering at the same time, there is always the risk of hybridization in a greenhouse;

anyone who wants to grow only true species should be careful of the source of supply. If heat is available seeds can be sown at any time, otherwise they should not be sown till April or May. A few kinds may germinate better if sown as soon as ripe but most seeds of succulent plants remain viable for several years and little is gained by sowing too early. Even in a greenhouse it is found that germination is more regular when the conditions outside are what is known as "growing weather." The faster the seedlings grow the better; any check will mean that the resulting plants are not so satisfactory. The seed should be sown thinly and evenly in good well-drained soil of which the upper layer is rather finer; small seed needs little covering and larger seeds should have a little fine soil sifted over them. The pots keep more evenly moist if plunged in peat or ashes and should be covered with paper to shade them and to prevent the surface drying too quickly, but the covering should be removed as soon as the seedlings begin to appear. These may be very small and already succulent which makes them difficult to handle at an early stage; provided the surface of the soil remains in good condition and the seedlings are not crowded they can be left for some months before being pricked out. Seedling plants do not need to be rested during their first year but should be kept continuously, but carefully, watered for their first eighteen months.

Vegetative propagation by cuttings is a quick and easy way of increasing the number of plants in a collection, where material is available. Spherical Cacti which do not make offsets cannot, of course, be propagated in this way; but any Cactus which branches can have a side branch removed and rooted separately. Cacti which have grown too tall can be beheaded and the top treated as a cutting. A number of Cacti make offsets round the base; these can be removed and will root easily if they have not already done so while still attached to the parent plant; it is not, however, necessary to take them off; some people prefer to leave the offsets so that a good clump is formed, which is more typical of the way the plant grows naturally. Some Euphorbias can be increased by cuttings, but the kinds which have a large central head with radiating branches, like *Euphorbia caput-medusae*, will not make satisfactory plants if the lateral branches are treated as cuttings; they will root but continue to grow in length only, not making the characteristic central head. Cuttings of succulent plants should be dried for a few days before being put to root. Pure sand is sometimes used as a rooting medium; it should be fine, not so coarse as that incorporated in the potting soil, so that the cut surface may be in contact all over. A more satisfactory mixture is fine sand and granulated peat which holds the water better; vermiculite can also be used and cuttings generally root very quickly in it but are apt to be starved if left too long. It has been found that a good layer of vermiculite over potting soil makes a good combination for cuttings which root quickly as the roots can then grow on into the soil and the cutting need not be disturbed if it is in a separate pot. Where a number of cuttings are to be taken over a period it is a good plan to fill a large box with some 3 to 4 inches of the sand and peat mixture; cuttings can then be put in as required and taken out when rooted; the rooting material will keep in good condition for a long time.

Cuttings of succulent plants are best shaded slightly but do not need to be kept close, as do soft-leafed plants.

In some plant families an even easier method of propagation is by leaf cuttings; this is not usually easy with members of the *Compositae* such as the Senecios and Kleinias, though a few will make new plants in this way; the method can be used for Aloes and Haworthias and there is hardly a member of the family *Crassulaceae* that cannot be propagated from the leaves, in fact the Bryophyllums make small plantlets on the edges of the leaves in the normal course of growth. The leaf should be carefully detached close to the stem as this is usually the region where growth is most easily induced; it should be inserted in the cutting box either vertically or at an angle; if laid flat on the surface the leaf tends to rot before new plantlets are formed at the base.

Grafting is a method of propagation which is occasionally necessary when plants cannot be grown on their own roots as in the curiously formed Opuntia known as the "Nigger Hand"; it is useful for plants which are weak on their own roots but, in my opinion, should only be resorted to when all other means of growing the plant have failed. The process of grafting consists in joining the plant which it is desired to grow (the scion) to a stronger-growing, well-rooted specimen of the same family (the stock) so that a perfect union between the two results. The stock should be so chosen that the area of the cut surface will be similar to that of the scion; it is especially important that the water- and food-carrying vessels which run through plants should be so placed that they will form a satisfactory union; the position of the vessels shows as a ring on the cut surface. The stock and scion should be freshly cut with a sharp knife and the surfaces immediately placed in contact and firmly fixed so that there is no chance of them shifting until the union is complete. The effect of the stock on the scion is not well known in succulent plants; but when one remembers the care with which fruit growers choose the appropriate stocks for the results they wish to obtain, it cannot be regarded as negligible.

The question of the pests and diseases which may attack succulent plants cannot be omitted even from a short survey of the subject; the chief pests are mealy bug, root mealy bug, scale and red spider; there are also a few diseases such as the black rot that is apt suddenly to attack Stapelias which is not well understood. There are a number of good proprietary insecticides on the market which can be used, but it should be remembered that many of those which are in liquid form contain a soapy solution which will dissolve the waxy surface of the plant, which is its natural protective covering. Plants in good health and growing freely are much less liable to attack by pests than sickly ones which are out of condition either from over- or under-watering, too much shade or too little ventilation. If and when a pest is found to be present, deal with it at once; if there is, say, one small patch of mealy bug, remove it with tweezers or a brush immediately, but do not spray the whole plant unless it is really necessary. I regard preventive spraying, that is giving a dose of insecticide in case a pest may be going to develop, as a very bad principle; grow the plants as well as possible and so make them unattractive as hosts to insect pests.

I have tried to cover a very large field in a short space of time; the methods of cultivation recommended are conservative and should not lead beginners astray. But the best teacher is the plant itself; watch how each responds to treatment, water it when it is growing and above all, rest it when growth slows up and ceases for the year. Many people, as their collection grows, like to experiment and there is more than one way of getting satisfactory results, so that one should not be too dogmatic, especially as conditions vary in different greenhouses and in different parts of the country.

F. C. PUDDLE, V.M.H.

FREDERICK CHARLES PUDDLE, V.M.H., a noted gardener, was the son of a Sunninghill businessman. He died at the age of 75 on August 23rd.

He was one of the great old professional gardeners who had had the very best of training, including a period at Veitch's Kings Road Nurseries.

At the age of 23, he was appointed greenhouse foreman at the large establishment of Hatfield House, where he was in charge for LORD SALISBURY (when the latter was Secretary of State for Foreign Affairs) of a wonderful array of greenhouse flowers and fruit, which was used for the great parties which LORD SALISBURY used to give at the Foreign Office. The arrangement for the parties was an arduous task in the days when everything had to be brought up from Hatfield to London by horse-drawn vehicles.

He later became head gardener to MR. ST. QUENTIN of Scampston Hall, Yorkshire, where he notably distinguished himself in the hybridizing of Orchids. He had there a large collection of these plants under his control, a very substantial percentage of which were hybrids raised by him in the gardens. Unfortunately, at the end of the first War, in 1918, the Orchids had to be sold.

As the Orchids at Scampston Hall had been the special interest to him, he left Scampston and accepted the position of head gardener at Bodnant.

It was possible to repurchase some of the best of his white Cypripediums—a race which had interested him from the beginning, and of which he had made a great success. He carried on with the development of these plants for the rest of his career at Bodnant.

Although when he left Scampston, he knew but little of either Rhododendrons or conifers, his sound training soon led him to become an expert on both these genera, and his knowledge of Orchid hybridizing stood him in excellent stead in hybridizing Rhododendrons and in cultivating their seedlings.

He will be specially remembered too for the fine shows of plants he put up on various occasions at the Chelsea and Rhododendron Shows of The Royal Horticultural Society, exhibits distinguished both by the condition of his plants, and by the fine taste with which they were arranged. He was long a member of the Society's Orchid Committee and of Floral Committee A.

He retired on grounds of health in 1947 from the position of head gardener at Bodnant, and devoted himself largely to writing articles in the gardening press.

His wife predeceased him in 1948, and he leaves two sons, the younger of whom succeeded him, after a successful and adventurous career in the Army, as head gardener of Bodnant.

Not only was F. C. PUDDLE outstanding as a gardener, he was also a wonderful friend and companion. Not only was every problem of cultivation at Bodnant left to him (indeed, who could do it better?), but he was fertile in suggestions of all kinds, although he never pressed them unduly.

He was a man of charming manners, and among many friends his loss will be greatly felt by a very wide circle.

ABERCONWAY

NOTES FROM FELLOWS

The Story of the Venidio-Arctotis Seedlings

IN 1930 there was a trial at the Royal Horticultural Society's Gardens at Wisley of Arctotis and allied plants. These were so beautiful that it was decided to save seed of a number of them, and this was done for a few years. In 1934 a seedling from *Venidium fastuosum* gave flowers of a totally different colour from those of the type. According to Wisley's description the colour of the flowers of this plant (instead of the usual rich orange) were pale creamy white, and in some lights with a slightly bluish tinge, and had a ring of black bars round the disc. Seed was saved from this plant, and sown in 1935. The resulting plants had quite a wide range of colour; cream, white tinged blue, lemon and primrose, all with more or less pronounced black rings and varying greatly in size and, to some extent, in the relative length of the rays, and the diameter of the disc. The habit of the plants also showed much variation, some approaching *V. fastuosum* and some *Arctotis grandis*.

In 1937 I was given some seed of this chance hybrid. This was sown in 1938 and thirty-five plants were raised. Out of these there were one *Venidium fastuosum*, several pure *Arctotis grandis*, and about ten plants showing hybrid characters. Several of the most interesting of these were selected and saved separately and were divided into two categories—those after *A. grandis* and those after *Venidium fastuosum*. About that time I was growing a number of related forms procured direct from South Africa. One of these was an unnamed Arctotis from Bushmanland. This made a very attractive garden plant, when the weather conditions were favourable, and had perfectly formed flowers with petals of good substance, creamy white with a slight tinge of pink. This was crossed with these hybrids. Then the war broke out. However, I just managed to keep the race going, continuing to select the best forms in the two categories. By 1945 production was started once more, and by 1948, through selecting the most attractive forms each year for stock seed, we had produced a race of hybrids, which were very distinct and attractive garden plants, and which were eventually offered under the name of

Arctotis grandis hybrids. These form vigorous branching plants, growing to a height of 2 to 3 feet, and anything from 18 inches to 2 feet across. The standards of the hybrids is kept up by simply rogueing out pure *grandis* or too near *grandis*, and poor forms, and by selecting the best forms each year for stock, openly selected, and saving the very best plants separately in single line selection.

One very interesting thing has now happened. For five or six generations all the forms appearing were similar to those described and nothing else was seen: but in 1949 a quite distinct form arose with the habit of plant and colour of flower-head after *A. speciosa* (*breviscapa*) hybrids, except that the plants were slightly taller than *A. speciosa*, and the foliage after *A. grandis* hybrids. Two such plants only appeared—one with rich orange and the other with wine-coloured flowers. It was obvious that these might be of the greatest value. If we could get the colouring of *A. speciosa* hybrids combined with the long stems and free-flowering habit of *grandis* hybrids, that would be a very useful addition. It appears to be a matter of doubt as to what these plants really are. Are they a chance mutation, or a chance cross pollination? Two or three plants only appeared out of a thousand plants in all. Immediately these plants were seen it was decided to back cross them with *grandis* hybrids. *A. speciosa* differs from *A. grandis* in having much dwarfer flowering plants, the flower scapes rising from the base of the plant to a height of 15 to 18 inches only, with much shorter flower stems than *A. grandis*. The colours of *speciosa* hybrids are, on the other hand, much more brilliant, and range from white, ivory, cream, yellow, orange, red, rich crimson, and also unusual wine shades, many with contrasting basal markings to the ray petals. The flower-heads are also about half as large again as *A. grandis*. It was obvious that if we could get these colours combined with the habit of *A. grandis*, it would rival the Gerbera in brilliance and usefulness for cutting. The two chance plants in the *grandis* hybrids were back crossed with *A. grandis* hybrids and also crossed with bright-coloured forms out of *speciosa* hybrids—the orange one being crossed with red shades, and the wine-coloured form being crossed with wine-coloured shades. Strange to say from these crosses no useful results were obtained whatever, the resulting plants simply resembling ordinary *speciosa* hybrids. Nor was any improvement obtained from seedlings from open saved seed from these separately selected plants. However, some very interesting results were obtained by the crossing of good forms out of *grandis* hybrids with bright-coloured forms in the *speciosa* hybrids. The results of these crosses done under control and by hand, were plants throwing long-stemmed scapes similar to those produced in the *grandis* hybrids, and with the bright colours of *speciosa* hybrids: and in some cases brighter colours than any yet seen in the existing *speciosa* hybrids. The difficulty so far has been that all these hybrid plants have proved sterile, or very nearly so, and can only be kept going by cuttings. However, experiments in the way of back crossing, and looking out for possible fertile plants are still being continued.

When × *Venidio-Arctotis* 'Sutton's Triumph' was shown at the Chelsea Show in May 1952 it received a Preliminary Commendation (Fig. 142).

A. P. BALFOUR

Lapeyrousia cruenta

Many of the most attractive bulbs and corms in our gardens come from South Africa, and to my mind one of the best of these is *Lapeyrousia cruenta*, formerly known as *Anomatheca cruenta*. In some ways this plant is reminiscent of Montbretia or Ixia, growing as it does in a clump of Iris-like foliage with wiry stems 9 to 12 inches tall upon which the flowers are carried. These are of an unusual and attractive bright coral-pink colour, with a dark red blotch just below the centre. Several flowers are borne on each stem, opening in succession, and they are normally about 1 inch in diameter.

For some reason which I do not understand, Lapeyrousia is not at all a common plant, in fact I have only seen it flowering at Wisley and in my own garden, and very few firms of nurserymen list it in their catalogues.

Lapeyrousia grows easily in a light sandy soil, and is quite hardy with me in a suburban garden near London, without a great deal of sun. It increases in a moderate way by multiplication of the corms, and even seeds itself a little, but it may be increased with remarkable rapidity by saving the seed and sowing in heat in January, when the seedlings flower during their first summer, an unusual thing for a bulbous plant. I find that seed sown thinly a quarter of an inch deep in pans, using John Innes seed compost, comes up in about four weeks, the pans having been placed in an electrically heated frame, kept at a temperature of about 65 degrees Fahrenheit. When the leaves are about 6 inches high, the plants are hardened off slowly, and at the end of May the whole panful is turned out and planted *en bloc* in the border without disturbing the roots. Seedlings treated thus flower well from July onwards. If required, the corms can be separated in autumn after the leaves have died down.

Established corms flower rather earlier than seedlings, beginning early in June, and continuing until frost causes the plants to die down.

In a normal London winter the corms are quite hardy out of doors, and appear less attractive to slugs than many other plants.

There is also a white variety, *L. cruenta alba*, of less vigorous growth.

J. H. HARRIS

Peristrophe speciosa

A perennial greenhouse plant which will flower from January to April and withstand a temperature down to 45 degrees is always welcome, and *Peristrophe speciosa*, with its violet-purple flowers, is useful for this purpose. Somewhat uncommon, but of the easiest culture, it makes, if stopped once or twice, a plant 2–3 feet high and as much through.

A native of India, we have not found it demands any special treatment although it prefers shade and is quite happy in our limy soil. The young shoots in spring after the plant has been cut down root readily in mild heat and are best stopped when potted. Three plants in a 32 pot make a very lovely sight, and they require no staking—always an advantage in these days.

It can be taken into a living-room for quite a time without suffering, although I don't think that is the happiest treatment for a good plant. Old plants can be retained for two or three years but will probably not flower as freely.

L. MAURICE MASON

King's Lynn,
Norfolk.

CURTIS'S BOTANICAL MAGAZINE

THE *Botanical Magazine* was founded in 1787 by WILLIAM CURTIS and has been published continuously since then. It holds a unique place in the scientific literature of the world, being, indeed, the oldest current scientific periodical of its kind with coloured illustrations. The plates are famous for their high level of beauty and accuracy and the text provides a wealth of authentic information.

CURTIS defined its aims as "a *Magazine* in which the most ornamental Foreign plants, cultivated in the open ground, the greenhouse and stove, are accurately represented in their natural colour . . . a work intended for the use of such Ladies, Gentlemen and Gardeners as wish to become scientifically acquainted with the plants they cultivate." Among the editors have been such famous botanists as SIR WILLIAM HOOKER, SIR JOSEPH HOOKER, SIR DAVID PRAIN, DR. O. STAPF, and in more recent times SIR ARTHUR HILL and MR. A. D. COTTON. The present editor is DR. W. B. TURRILL, Keeper of the Herbarium at Kew. From the time that SIR WILLIAM HOOKER became Director of Kew in 1841 the *Magazine* has been closely associated with the Royal Botanic Gardens, and the editorship has been held by the Director or Keeper of the Herbarium. The plants figured have been derived from the Royal Botanic Gardens, Kew, and other botanical institutions and private gardens. The illustrations of the *Botanical Magazine* may truly be said to present a history of the plants introduced throughout the last two centuries. The earlier numbers dealt chiefly with European and South African plants. In later volumes the introductions of LOBB and DOUGLAS from America were included. Over a thousand plates alone have been devoted to the flora of North America. In the present century much of the floral wealth of the Far East has been introduced into our gardens on a larger scale than any previously known by a band of famous plant collectors, including WILSON, FARRER, FORREST and KINGDON-WARD. A great number of these beautiful plants have been figured for the first time in the *Botanical Magazine*. The latest introductions of LUDLOW, SHERRIFF and GEORGE TAYLOR, as well as KINGDON-WARD, have provided excellent subjects and more will follow.

A series of famous botanical artists have drawn plates for the *Magazine*, including SIR WILLIAM HOOKER himself, J. SOWERBY, SYDENHAM EDWARDS, W. H. FITCH, MATILDA SMITH, and in the present period MISS LILIAN SNELLING, MISS STELLA ROSS-CRAIG and MISS ANN WEBSTER. The skill of the present artists equals in both beauty and accuracy the best work of their predecessors. The earlier plates were copper engravings coloured by hand. Later, lithography was used, the plates being printed

first from the stone on which the artist had drawn direct; later, zinc blocks were used. The black and white outlines thus produced were coloured by hand to match a pattern coloured by the artist. Hand-colouring ceased to be practical in 1947 and a new series was started with the best mechanical form of reproduction that could be obtained.

Each part of the *Magazine* contains one double and ten single plates and the volume of four parts will be published over a two-year period. However, a yearly subscription of two parts is now being made available as well. The text will be written by an expert on the genus, and will include a full description of each plant, details of its discovery, native habitat, natural distribution and suggestions for its cultivation. Chromosome numbers will be included where possible. Since the present trend of horticulture is towards the cultivation of hardy plants, illustrations of these will form the bulk of the plates, but the old tradition of including Orchids and greenhouse plants will still be observed. The newer species of Rhododendron will continue to be described and figured.

Necessarily, the edition of the *Magazine* is limited in numbers, and previous volumes of the *Magazine*, especially complete sets, are highly treasured possessions, and now very valuable. Volume 165 began a new series, and in order to simplify reference, the plates of this series were numbered from No. 1. The volumes of the new series are available only in a limited quantity, but new subscribers have an excellent opportunity to obtain now the previous parts published since April 1948.

The *Botanical Magazine* plates are quoted in many scientific and horticultural publications, including the new R.H.S. *Dictionary of Gardening* recently published by the Oxford University Press. An Index of the *Botanical Magazine* is in preparation to facilitate reference, and this will be of great benefit.

The *Magazine* is no less than an old and valued tradition, and in the words of a former editor it ought to be a matter of pride to support it, remembering that botanists and gardeners throughout the world have relied for 160 years on the inspiration and help they have received from the *Botanical Magazine*.

In order that more Fellows may become acquainted with this *Magazine* a specimen of the plates is included with this JOURNAL, printed by the method used for the *Magazine*; the text accompanying this plate appears on the next page. It is hoped that Fellows will note the horticultural as well as the botanical importance of the *Magazine*. Further subscribers are still urgently required in order to assure the continuation of the *Magazine*. It is hoped that as many Fellows as possible will support it at the new rates: the annual subscription for two parts is £2 or $5.75 in U.S.A., post free; the subscription for the volume of 4 parts to be published over the two-year period still remains at £4 or $11.50 U.S.A., post free. It will be a convenience if Fellows who wish to ensure having the *Magazine* regularly will send standing orders for it. All subscriptions should be sent to The Secretary, The Royal Horticultural Society, Vincent Square, London, S.W.1.

TAB. 195

MUSCARI TUBERGENIANUM

Liliaceae

The original painting here reproduced was prepared from plants supplied by Messrs. R. Wallace & Co. of Tunbridge Wells. We are indebted to this firm for the excellent material that has enabled us to prepare, and apparently for the first time to publish, a reasonably full description of a species that is both botanically interesting and horticulturally important. The plants were in full flower on 17–18 April 1950 when they were on view at the Fortnightly Show of the Royal Horticultural Society.

Muscari Tubergenianum was introduced by Messrs. C. G. van Tubergen Limited, and distributed by them under this name. The original bulbs were collected by Herr Georg Egger who was German Consul at Tabriz in Persian Azerbaidjan. No exact locality has been traced. The vague statement that they were found 'on the high slopes and mountains of North Western Persia' cannot at present be made more precise. An account of the country and of the flora of Persian Azerbaidjan by B. Gilliat-Smith and W. B. Turrill will be found in the Kew Bulletin, 1930, pp. 273 seq. but neither in this paper nor in others dealing with the plant life of Persia has any species of *Muscari* agreeing in its sum of characters with *M. Tubergenianum* been traced. Several species have been described, by Russian authors, from the Caucasian region (in the broad sense) of which, unfortunately, no material is available in this country. The original descriptions of these have been consulted, with a few exceptions, and they have not been considered as depicting *M. Tubergenianum*. The genus *Muscari* badly needs monographic revision but this should be preceded by long and detailed study of many living plants either as wild populations or as collections of known wild origin in gardens.

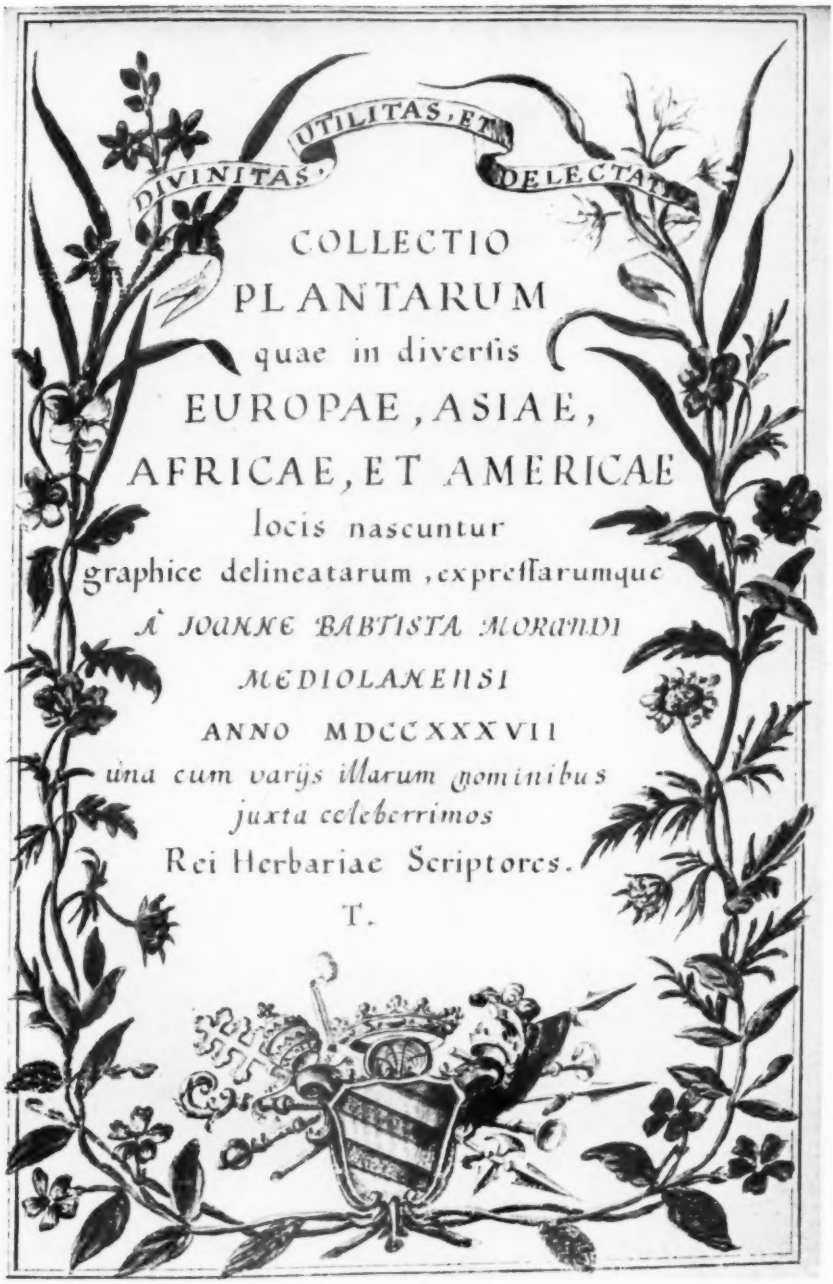
Muscari Tubergenianum was given an Award of Merit by the Royal Horticultural Society on 18 April 1950. Plants were then exhibited by R. W. Wallace, Esq., V.M.H., The Old Gardens, Tunbridge Wells, Kent (see Journ. R.H.S. **75**, 291 : 1950).

The affinities of our plant, in so far as such can be suggested on the basis of morphology, are somewhat uncertain. There are several species known with relatively broad flat leaves. Thus *M. latifolium*

Muscari Tubergenianum

ANN V. WEBSTER del.

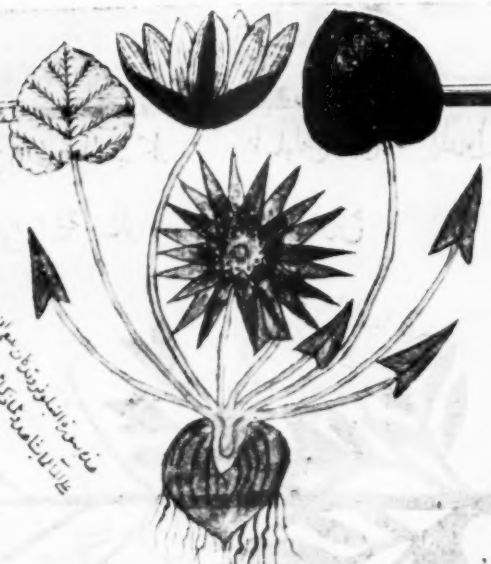
A specimen plate from the Botanical Magazine, Volume 169, part 2



Photo, J. E. Downward

BOOKS FROM THE LIBRARY OF THE SOCIETY OF HERBALISTS

FIG. 133—Title page of an unpublished MSS. of an Italian 18th-century Herbal by Morandi Giambattista (See p. 369)



موز بو هو اللوف يقل بعظيم الورق له ساق عض مفرد واصل واحد يستدير به ورق كورق
الزاذاج ولذلك سمي بهذا الاسم اما قمه كالجوف متلون سبت في البقاع الاحمنه ومحفظ الجراح الطريه عن
ان يرم اذا ضمدت به مع الخل طرفا وماسا وقد سفى منه للسقطه من عالى مع الخل الممزوج بالماء

موز لبن قد يسمنه بعض الناس المرادشبه في ورقه وبزوبه للشوكران واصله عض فيه
طول وهو عديم الرائحة طيب الطعم سفى من لسع الزنابير اذا اكل مع الترياق يقي من دم الطشت

Photos, J. E. Downward

FIG. 134 (opposite)—A page showing a Water Lily from the hand-painted copy of a Persian version of a 1st-century Greek Herbal of Dioscorides, *De Materia Medica* (See p. 369)

FIG. 135—A page showing an illustration of a Coltsfoot from an unpublished Herbal of the 18th century by Dr. Joshua Webster (See p. 369)

Photo, J. E. Downward

FIG. 136—Rhododendron 'Cinnkeys' Minterne var. **F.C.C.** May 20, 1952. Exhibited by Col. the Lord Digby, D.S.O., M.C., T.D., Cerne Abbey, Dorchester, Dorset (See p. 385)

Photo, Sutton & Sons Ltd.

THE FORCING OF EARLY VEGETABLES

FIG. 137—Cauliflower 'Harbinger' (See p. 374)

Photo, Sutton & Sons Ltd.

FIG. 138—Lettuce in cold frames, 'May Queen' (See p. 373)

Photo, Amateur Gardening

FIG. 139—The new Home of The Gardeners' Royal Benevolent Institution (See p. 347)

FIG. 140—Samples of Chicory from sand, soil and peat (See p. 381)

WITLOOF CHICORY

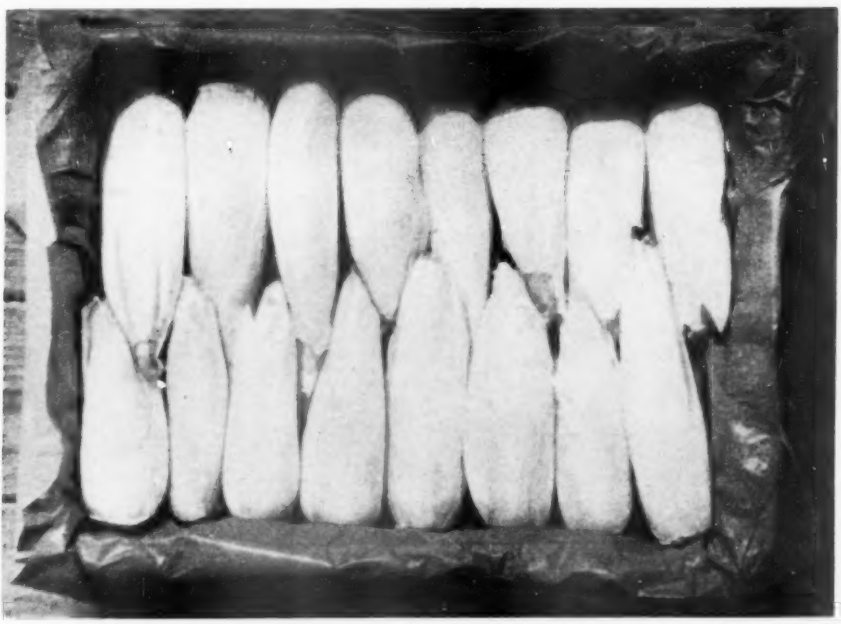


FIG. 141—A pack of 'Zwaans Early' forced in peat (See p. 381)

Photo, J. E. Downward

FIG. 142—Venidio-Arctotis Seedlings, 'Sutton's Triumph' **P.C.** May 20, 1952
(See p. 362)

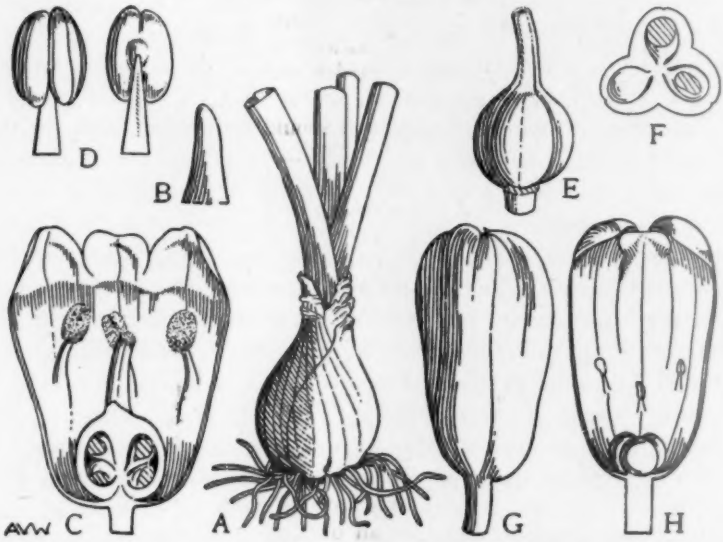
(Bot. Mag. t. 7843: 1902) has leaves even broader than those of *M. Tubergenianum* but they do not, in the specimens seen, taper gradually upwards in the upper part, and the perianth is quite different. Nearer are some specimens provisionally placed with *M. Aucheri* (Boiss.) Baker but the type of this species at Kew is a small plant with a few-flowered inflorescence of smaller apparently darker coloured flowers. Material cultivated at Kew in 1936 from stock received from Berlin under the name *M. Aucheri* is very probably *M. Tubergenianum* but may well have been sent from Persia by Egger. It has seemed best formally to contrast *M. Tubergenianum* with *M. armeniacum* which has been previously figured and well described in the Botanical Magazine, t. 9157 (1928).

Cultivation. Muscari Tubergenianum is hardy to semi-hardy in the south of England. It grows and flowers well either in a cool greenhouse in a deep pan or in sunny situations in a rock garden. A rich loam of reasonable depth with some lime is suggested as the best soil and the bulbs should be given good drainage. As with other species of grape hyacinth, watering should be limited to the growing season and the bulbs should be given a period of dry dormancy in the summer. Propagation by separating daughter bulbs is easily accomplished but no information of seed setting is at present available. It is stated to be 'a free grower and a good increaser'. There is no doubt that *M. Tubergenianum* is likely to become an important addition to the early spring flowering bulbous plants of our gardens. One possible weakness is that the leaves are produced rather early and appear, on present evidence, to be more tender than those of the more commonly grown species. They are well developed at the flowering period and their relatively broad expanse makes them susceptible to late frosts.

Muscari Tubergenianum *Hoog ex Turrill* **sp. nov.** —; a *M. armeniaco* Boiss. foliis latioribus, floribus minoribus pallide coeruleis praecipue distinguitur, —C. G. van Tubergen Ltd., New Bulbous- and Tuberous-Rooted Plants, 22 (1947); Boom, Gekweekte Kruidachtige Gewassen, 342 (1950).

Description. *Bulb* ovoid, about 3·5 cm. long and 2·5 cm. in diameter, outer scales membranaceous with irregularly truncate apices. *Flowering stems* erect, up to 3 dm. in length from the top of the bulb and 1·8 dm. above the level of the soil, terete, glabrous, bright green. *Leaves* all basal, 2 to 3 arising from one bulb, excluding the basal fleshy scale portion narrowly linear in the lower part (below soil level) then broadly linear or

lorate till tapering in the uppermost part to the apex, total length, 2·2 to 2·8 dm. of which 1·3 to 1·7 dm. is above the soil, in the broadest part 0·8 to 1·8 cm. wide, green and slightly glaucous especially on the abaxial surface, glabrous, with very numerous (up to 50) fine approximately parallel veins. *Raceme* shortly cylindrical or ovoid-cylindrical, 2·5 to 3·5 cm. long, 1·6 to 2 cm. in diameter, many-flowered, the upper flowers sterile; bracts subulate, 0·7 mm. long; pedicels 4 mm. long, cylindrical, slender. *Perianth* of fertile flowers ellipsoid, 4 to 5 mm. long, 3·5 mm. in diameter, near the apex somewhat flattened by a 'shoulder' development,



A, bulb and bases of leaves, natural size; **B**, bract, ×20; **C**, longitudinal section of flower, ×8; **D**, stamen, front and back views, ×12; **E**, gynoecium, ×8, **F**, transverse section of ovary, ×8; **G**, sterile flower, ×8; **H**, longitudinal section of sterile flower, ×8.

concolorous, colour Sky Blue to Yale Blue (Ridgway, Color Standards, Plate XX); mouth 1 to 1·5 mm. in diameter, lobes short more or less ovate to oblate 1 mm. long rounded or slightly emarginate; of sterile flowers smaller slightly more elongated relative to breadth and the mouth remaining closed but otherwise not markedly different externally. *Stamens* inserted about the middle of the perianth-tube; filaments 0·75 mm. long; anthers oblong then more or less ovoid after dehiscence. *Ovary* ellipsoid-trigonous, 1·5 mm. long and the same in breadth; style slender, simple, 1·5 mm. long, with a very small obscure and scarcely 3-lobed stigmatic apex.

DISTRIBUTION. N.W. Persia.

W. B. TURRILL

EXHIBITION OF BOOKS FROM THE LIBRARY OF THE SOCIETY OF HERBALISTS

Lanning Roper

THE exhibition of botanical books and herbals from The Society of Herbalists arranged from July 3 to 5, 1952, in the beautiful setting of Londonderry House by the kindness of the Marchioness Dowager of Londonderry was opened by Lord Aberconway who paid tribute to the great achievement of amassing this unique library. Mr. Wilfrid Blunt outlined some of the highlights not only for the botanist and the horticulturist but for the bibliophile and the art enthusiast as well. This very rich collection, assembled over a twenty-five year period by the Chairman, MRS. C. F. LEYEL, contains a remarkable range of botanical and horticultural books as well as many rare ones on angling, ornithology, cookery, medicine, garden design and even secret magic.

It is impossible here to describe such a collection in detail, but there were certain books displayed which should be singled out, because of their importance, rarity or beauty. The hand-painted copy of a Persian version of the celebrated 1st-century Greek herbal by Dioscorides, an exact copy of a 12th-century manuscript in the Mashad Shrine in Persia, is unique, no other copy being known in Europe (Fig. 134). This is also of considerable interest as it illustrates the transmission of ancient Greek learning eastward. *Herbarium Vivae Eicones* by OTTO BRUNFELS dated 1532 and LEONHART FUCHS's *De Historia Stirpium* (1542) are two great landmarks in the history of woodcut herbals, for they show the turning to nature for actual material rather than relying on copying from representations of the past. Their publication has been taken as indicating the end of the Middle Ages. These two great works were reproduced and copied throughout Europe for several hundred years. The examples in this collection are very fine, as are the works of CLUSIUS, L'OBEL, DODOENS, WILLIAM TURNER, JOHN GERARD, JOHN PARKINSON, etc.

Another work of note was an unpublished herbal by DR. JOSHUA WEBSTER consisting of 221 water-colours of plants delightfully executed and of great beauty and refinement (Fig. 135). A fine copy dated 1614 of the remarkable *Hortus Floridus* of CRISPIN DE PAS with its exquisite flowers and delightful butterflies and insects was outstanding.

The great coloured flower books of the 18th century which were produced to satisfy the interest of rich patrons in decorative floral books figured prominently in this exhibition. The eight volume *Hortus Romanus* by GEORGIO BONELLI, 1792–93, is rarely found in its entirety, and the beautiful work in colour of CARLO ALLIONI, *Flora Pedemontana*, published in Turin in 1785, both highlights of Italian book production, were noteworthy. Even more beautiful is a sumptuous coloured copy of *Horti Amstelaedamensis . . . plantaraum . . . descriptio*, 1697–1701, which reflects the love of detail and the passion for flowers which characterized taste in Holland at that period. A MS. Italian 18th-century herbal with coloured drawings by Morandi has a title page of unusual beauty which is reproduced as Fig. 133.

The greatest French botanical artist, in fact one of the outstanding flower painters of all time, is of course REDOUTÉ, who was represented in this exhibition by a number of his finest works illustrating his supreme

skill and taste. No wonder his popularity in the world of fashion and luxury of the French Court was assured. Today with the renewed interest in old Roses, REDOUTÉ figures prominently and it was interesting to see his work ranged next to ELLEN WILMOTT's *The Genus Rosa*, with water-colour drawings by ALFRED PARSONS, done about a hundred years later, and a series of other works devoted to this genus. REDOUTÉ's *Les Liliacées* is equally superb. Of particular interest to the lover of Camellias was the inclusion of BERLÈSE's *Iconographie du Genre Camellia*, printed in Paris in 1841.

For the ornithologist mention must be made of BUFFON's *Histoire Naturelle des Oiseaux*, published in Paris in 1770, of the magnificent volumes by LEVAILLANT depicting parrots and of one of the rarest of all bird books, LEWIN's *Birds of Great Britain*, the plates of which are all original water-colour drawings done by LEWIN himself, hence an edition of only sixty copies.

Turning to English coloured flower books, the most famous is of course the folio edition of JOHN ROBERT THORNTON's *The Temple of Flora*, 1799–1807. Of even greater importance is the magnificent *Flora Graeca*, 1806–13, by SIBTHORPE and SMITH, with paintings of the first quality by FERDINAND BAUER, which ranks as one of the greatest productions of the 19th century, not only for the beauty and accuracy of the illustrations but for the presentation of many plants never before figured. The first 53 volumes of CURTIS's *Botanical Magazine* which were displayed make an interesting link between the past and the present, for this great periodical which first appeared in 1787 is still produced by The Royal Horticultural Society. MRS. EDWARD BURY's impressive and massive volume entitled *A Selection of Hexandrian Plants* (1831–34), although lacking in the subtlety of some of the other English works of the period, is fascinating in its originality and forms an amusing contrast to ROBERT SWEET's *Geraniaceae*, many of the plates of which were displayed, or the *Pomona Britannica* of GEORGE BROOKSHAW which appeared in 1812 and is considered the finest existing book of hand-coloured prints of fruit.

Several important works on American natural history appeared in the 18th century, among them MARK CATESBY's *Hortus Britanno-Americanus*, published in London in 1743, and his *Natural History of Carolina* in 1771 with curious black backgrounds to the plates.

No collection of botanical books would be complete without some works of LINNAEUS, who played so great a role in the foundation of modern systematic botany. The library of The Society of Herbalists is again rich, having some of his distinguished works.

For herbalists the books of NICHOLAS CULPEPER are of supreme interest. This colourful though unorthodox 17th-century physician, a combination of astrologer and practising herbalist, published a series of books which have kept alive an interest in herbal medicine in this country. The Society has an extraordinary collection of his work and because of the demand for CULPEPER's writings many private editions appeared through the years.

Continuing the tradition of coloured floral illustration to the present day, MRS. LEYEL recently obtained an 18th-century folio volume containing

blank vellum sheets bound in red morocco with the arms of George III emblazoned, and The Society of Herbalists has commissioned MISS MARGARET STONES, a young Australian artist, to do a series of flower paintings. If her representations of *Rosa Moyesii* and *Borago officinalis* are fair samples, this will be a worthy addition to its library.

This wonderful exhibition will be on display in the Arts Council's Gallery at 4 St. James's Square next June, at the time of the Coronation, for a month. After that it will go on a tour of the major towns throughout the country. In this way a large section of the interested public will have the advantage of seeing this unique collection.

THE FORCING OF EARLY VEGETABLES

F. G. Potter

(*Lecture given on July 8, 1952; Dr. H. V. Taylor, C.B.E., V.M.H., in the Chair.*)

IN the old days when the large estates and ancestral homes of this country were lived in, heated greenhouses and frames could be found giving full production throughout the winter months for the production of early vegetables. Labour was plentiful and certainly not so expensive as it is now. Fuel was in abundance for heating purposes and, above all, not rationed. But those days are just a dream and the forcing of early vegetables by the old methods must remain with the past.

During the past two years I have been privileged to visit MR. SECRETT's farm at Milford, and after the last visit I was asked by a friend to describe what I had seen. Without hesitation I replied—"It is not a farm; it is not a market garden, but a vegetable factory." There you find modern science defeating present-day difficulties by the use of Dutch lights, cold frames, cloches, irrigation and discreet times of sowing and planting, while the work of the commercial plant breeder in raising stocks of seed which respond to certain methods of cultivation is not forgotten.

Now let us examine how early vegetables can be grown in these more difficult days, for it is NOT done merely by purchasing haphazardly a few packets of seeds, sowing them and hoping for something to grow. Careful planning of every detail is the keynote to success in such a project.

Types of soil must be considered. If a sheltered spot can be found, by all means use it, but avoid land which is overhung by trees because the maximum amount of light and air is of paramount importance. Further, in looking for the ideal spot, do not be led into false security by accepting a very low position in a garden which inevitably has a reputation for bad frost pockets. The best site should face south. Also, good soil drainage is essential and we must pay particular attention to the subsoil. Avoid clay as this does tend to "lay cold" and root action is much slower and must eventually slow up the maturity of any crop.

There are various ways of protecting early vegetables.

1. By Dutch lights and cold frames.
2. By hot beds.
3. By cloches.

The above may be used to grow vegetables to maturity where sown, or to begin the growth of plants to be transplanted elsewhere. Alternatively the lights may be removed from the crops so that they finish their growth in the open.

CLOCHES. These are of French origin and recent years have seen great advances in them in this country. Today they are most popular, not only in the private garden but also with the commercial grower. The largest type has a span of 4 feet or more, but generally they are offered in varying sizes to suit different purposes.

The Barn type of cloche seems to be universally accepted as the most satisfactory and adaptable for various kinds of vegetables. They are placed end to end in lines which provide a continuous protection for whatever distance is required. A single pane of glass or shaped board firmly placed at each end of the row shuts out any through draughts.

Generally speaking, by using cloches, sowing dates may be advanced in most parts of the country by at least a month over ordinary outdoor sowings.

I cannot stress too strongly the importance of planning, because with cloche cultivation the greatest possible use should be made of them to cover as many different crops as possible in any one season. It is important therefore to study the strip method. This consists of the use of a strip of land sufficiently wide to allow two rows of cloches with a pathway between of at least 18 inches. In effect, this means that when the cloches are ready to come off one strip, they can easily be placed over the next row, and so on. By following this method, breakages are reduced to a minimum.

Preparation of the soil for use under cloches should receive special attention as it is no easy matter to increase the moisture when once they are in use, particularly in the early stages. It is difficult, if not impossible, for anyone to lay down hard-and-fast rules for manuring, as no two soils are quite the same, and indeed, no two species require the same food. I would suggest that if you are in any doubt, consult a good soil analyst.

CARROTS. In Dutch lights and cold frames, I recommend 'Amsterdam Forcing' Carrot as first choice. It is quick maturing, the roots are the shape of your middle finger; it responds beautifully to this method of cultivation, and above all, has the smallest foliage of any variety I know. It is rarely if ever that one sees greening on the shoulders of the roots. If hot beds are used in the frames and successional sowings practised, this variety may be sown from the middle of January to the end of February. The same variety may be sown in February in cold frames. 'Champion Scarlet Horn' or 'Ideal' are larger forms of Carrot, slightly later maturing, with rather stronger tops than the 'Amsterdam Forcing' and they are chiefly used for cold frame work.

In lights or frames, thick sowings are most undesirable and should

be avoided. During periods of hard weather reasonable precautions should be taken to mat down and at no time should Carrots be allowed to dry out. For the cloche grower on light soils, 'Amsterdam Forcing' is also very successful. 'Champion Scarlet Horn,' however, is often more reliable.

LETTUCES. Unlike the Carrot, where the choice of variety is rather restricted, there is a much wider range of Lettuces.

For example, in heated frames, 'Gotte a Forcer,' 'Early French Frame,' and 'First of All' succeed admirably because they are quick hearting with compact growth.

For producing early Lettuces for cutting say in March, a start should be made by sowing seed in a cold frame about the second week of October, pricking out as soon as the seedlings are big enough to be handled, and finally transferring them to heated frames or Dutch lights about mid-January.

For the person with a cold frame, I cannot do better than recommend 'May Queen.' This is the most reliable in the early Lettuce class, being larger but slightly later maturing than the other early forcing types (Fig. 138). One advantage is that 'May Queen' will stand longer before commencing to run to seed. Planting up the frames or lights should start towards the end of January and hearts should be ready to cut throughout April.

Such varieties as 'Improved Unrivalled,' 'Market Favourite,' 'Borough Wonder,' and 'Feltham King' may be sown in cold frames in late autumn, allowing the plants to remain in the frames during the winter months and finally transplanting to the open ground as soon as soil and climatic conditions permit. For this type of production the seedlings may either be left as sown in the frames and thinned out during the winter months, or as soon as plants are large enough to be handled, they could be pricked out 2 inches square to enable good sturdy plants to be transferred to the open ground.

LETTUCES UNDER CLOCHES. For the very earliest work, seed is sown in September–October, and the seedlings pricked out in November. 'May Queen' is very reliable. For a sowing early in the year, such varieties as 'Improved Unrivalled' 'Market Favourite' and 'Feltham King' would be satisfactory. As the season advances, cloches may be used on almost all varieties to hasten maturity, whether the European or subtropical kinds are used.

For the grower who prefers the Cos type of Lettuce, particularly in the early spring months, 'White Heart' and 'Lobjoit's Green,' sown in the autumn, wintered in cold frames and transplanted to the open ground when weather permits, are suitable, and in my opinion the best developed Cos Lettuce are produced at that period of the year.

CAULIFLOWERS. The grower of early or forced Cauliflowers might be described as a specialist, and there are many different times of sowing and methods of handling the young seedlings. For each individual method certain varieties are more suitable than others, and I cannot stress too strongly the importance and utmost care in the choice of varieties, for practically everything depends on this point.

One method of raising early Cauliflowers is to sow seed about the

third week in September, pricking off the seedlings into single pots, soil blocks, or trays, which are then wintered in cold frames and eventually transferred to the open ground in March or April, according to district, and cut in May and June. But remember, Cauliflowers must have good soil. 'Harbinger' (Fig. 137), 'White King,' 'Snowball' and 'Driancourt' form a natural succession.

Up to a point, the cloche grower is in much the same position as the person with frames, except that his sowing date for Cauliflowers should be advanced a little. He should sow seed about the end of August or early September in the open, pricking the seedlings out under the cloches about 3 inches square, and then finally transplanting under the cloches in spring. Where intercropping is practised under cloches, these cauliflower plants could be planted between the Lettuces which were also sown in the autumn. 'Early London White' and 'All the Year Round' are the varieties I like best for this work.

A further succession of Cauliflowers can be obtained by sowing under cloches in January. 'Snowball' and 'Pioneer' would produce heads of most excellent quality. A few days ago while on a visit to Holland, I was most interested to see trials of Cauliflowers and among them I noticed that pot-grown plants matured at least a week to ten days earlier than those in soil blocks.

RADISHES. Early January sowing in hot beds will quickly produce an additional ingredient for the salad bowl. Avoid thick sowing and keep a careful watch on development as they are very quick to mature, usually taking about three or four weeks from the time of sowing. In the event of frosty weather extra protection must be given.

Under cold frame treatment, seed sown at the beginning of February should give an excellent succession to follow those sown in January on hot beds.

With Radish-growing in frames, during the period of growth careful attention should be given to ventilation and also light. The maximum amount of ventilation should be given at all times according to weather conditions. Failure to do so may be the cause of getting all top and no root. Under cloches, Radishes are extensively used for intercropping.

At this point, may I suggest that with Radishes, it is much better to sow a small area, according to your requirements, at intervals rather than one large sowing. I have often walked into a garden to find a large area sown which generally means a loss from a percentage of large, overgrown, pithy roots, which are useless on the table or in the salad bowl.

Over a period of time I have very closely studied the question of varieties, and have long since come to the conclusion that if a round root is desired 'Red Forcing' is the best. It has the shortest top, a factor which is most essential in good Radish-growing. Also, it is quick to mature. However, if the 'French Breakfast' type is your choice, then I can only suggest you obtain a first-class stock of 'Forcing French Breakfast.' Another variety which can be recommended is the 'Red White Tipped' or 'Sparkler' type which has a round root, half red and half white in colour of skin.

TURNIPS. To get nice young roots fit for the table in May, 'Red' or 'White Strap-leaved' or ' Early Snowball,' can also produce very early

roots. Here again I would recommend the use of a small area for early work rather than a large sowing.

PEAS. Some people still have the idea that really early Peas can only be obtained, without the use of a greenhouse, by sowing round-seeded varieties in November. I definitely do not subscribe to this theory.

With the use of cloches and by sowing in January, the new first early dwarf Pea—'Feltham First' (a semi-round-seeded kind) is unquestionably the best for the earliest picking, usually about the third week in May. To form a succession under cloches 'Market Gem' would be ready about ten days later if sown at the same time.

For February sowing under cloches, 'Foremost' and 'Improved Pilot' are still two of the best of the earliest 3-foot strawed varieties and, under normal conditions, should be ready for picking at the end of May or early in June.

I would also recommend the sowing of wrinkled seeded Peas under cloches in February and the use of such varieties as 'Kelvedon Wonder' and 'Pioneer.'

BROAD BEANS may not strictly be included under the heading of this talk, but for the cloche grower especially I would recommend an entirely different and comparatively new variety known as 'The Sutton Broad Bean.' This does not grow more than a foot high, and in my opinion is the most suitable of all Broad Beans for growing under cloches, whether sown in November, February or March.

DWARF BEANS. A heated frame which has been used for January sowings of Radish Carrot, and so on, when cleared say at the end of April or the beginning of May, can be used for Dwarf Beans. There is not perhaps a great advantage in the time when these are fit for the table, but it does save a week or two.

The same remarks apply more or less to the cloche grower, but his sowing dates must be earlier. In a well-sheltered southerly district, about the middle of March is the most suitable time provided the cloches, are kept on during the period of the year when there is the slightest risk of frost. The sowing date for the Midlands and colder regions should be delayed until the middle of April. 'The Prince' and 'Masterpiece' are the two most popular varieties, being continuous bearing.

CUCUMBERS. It is not a general practice in this country to grow Cucumbers in frames but mostly in heated greenhouses. It is possible, however, and a visit to Holland will prove how successful this class of cultivation can be. The two varieties for growing in heated frames are 'Butcher's Disease Resister' and 'Telegraph.' In my opinion the cloche grower is well supplied because even in the most southerly districts he has the choice of a number of suitable varieties. Sowings of Ridge Cucumbers should not begin before the end of March but it would be safer to defer until the middle of April. Such kinds as 'King of the Ridge' and 'Long Green' leave little to be desired.

MELONS. In heated frames, seed may be sown from February onwards and care should be taken that the heat can be maintained over the growing period. Time does not permit me to go fully into the question of cultivation such as making-up the beds, methods of planting out, stopping and training and pollination, but these points should be closely

studied before attempting Melon growing. Of large numbers of varieties available of English hothouse Melons, I think 'Hero of Lockinge' succeeds best of all in a heated frame, but it must be remembered that the 'Cantaloupe' types are definitely more adaptable for this class of cultivation than the English hothouse kinds. This remark also applies to the cloche grower, and the varieties 'Dutch Net,' 'Tiger' and 'Charantais' can well be recommended.

ENDIVE. Although one would not describe the Endive as a national dish, yet those of us who have had the opportunity of visiting the Continent, will appreciate the reason why I mention it. Its cultivation in frames is not at all difficult, providing always that plenty of ventilation is kept going to prevent excessive moisture rotting the hearts. For many years I have noticed in Holland that the 'Round-leaved Batavian' has been grown with the aid of Dutch lights and produced better hearts than the Curled varieties, although I must confess that in this country I have seen excellent hearts on the 'Extra Fine Green Curled',

SWEET CORN. The growth of this increasingly popular vegetable can be accelerated by the use of glass, particularly by the use of Dutch lights, which are later removed. For the cloche grower the sowing season may be slightly advanced to enable a good sturdy plant to be available as soon as the risk of frost is gone. 'John Innes Hybrid,' 'Canada Cross,' and 'Golden Bantam' are all good kinds to grow in this country. I find 'Golden Bantam' is slightly later in maturing than the other two kinds.

MARROWS can be popular when grown in Dutch lights, cold frames and cloches, the 'Improved Green Bush' being a good class of Marrow for this form of cultivation. It may be used as a successional crop, started in a Dutch light, from which the lights are finally removed altogether, or it can be grown in cold frames on which the lights are retained. The frames may even be used for raising plants to be eventually transferred to the open. Cloche growers definitely gain here by being able to cut much earlier from their plants than from outdoor sowings.

There is quite a number of other types of vegetables such as Beet, Onions, Brassicas, and Celery of the self-blanching type, which could be brought along quickly by starting in frames or under cloches, but time does not permit me to describe fully how all these can be grown with the aid of glass or protection. I must however refer to the further profitable use of glass to accelerate maturity of certain vegetables normally grown outdoors.

Particularly would I refer to the Brassica family, especially to sowing Brussels Sprouts in the month of February in cold frames or under cloches to enable perfect plants to be raised fit to go out to their final quarters from the middle to the end of May.

In the case of Cabbages: such varieties as 'Golden Acre' or 'Pride of the Market' may be sown under Dutch lights or cold frames to get plants big enough to transplant outdoors in April to produce those round-headed Cabbages one so often sees in the markets during the months of June and July.

This type of sowing enables one to get an excellent succession to the

autumn-sown Cabbages outdoors. It is possible some of you may not like the large round-headed white Cabbages and, if so, there is a small pointed headed early variety known as 'Earliest' or 'Greyhound' which may be treated in the same manner.

Under the heading of *Vegetable Forcing*, do not forget the big part which intercropping can play. Such vegetables as Lettuces, Turnips, Carrots, Radishes and Cauliflowers, can be grown in this manner if a set plan is followed and carefully worked out for dates of sowing and transplanting.

With either Dutch lights, cold frames, hot beds, or cloches, intercropping can greatly increase the amount of vegetables of outstanding quality, and in addition to the above formula, another good plan is to sow Carrots about mid-January; a few days later Lettuces may be planted. When the Lettuces show full head, Cauliflower plants can be put in. This would give tender Lettuces, followed by delicious young Carrots and, finally, nice heads of Cauliflower.

Another succession worth following is Turnips, Lettuce, Carrot and Cauliflower; or Lettuce, Carrot and Sweet Corn; or Lettuces and Melons. In my opinion, however, one of the best plans for those growers fortunate enough to have hot beds, is Lettuces, Turnips, Carrots, Cauliflowers, and self-blanching Celery.

In this short talk I have tried to cover a rather large field and it is no easy matter to know where to finish, but I do feel that I would be wrong to conclude without making a few more general observations.

I refer to the necessity of having a complete plan of rotation for all your types of glass, and working to a systematic schedule.

The use of manure and artificials should be carefully considered in relation to the crops to be grown and the state of soil fertility before they are applied. If in any doubt, have your soil analysed to find out what it needs. Plenty of water should be available and above all, cleanliness in the garden should be comparable with your own bathroom, for without hygiene, particularly where glass is concerned, trouble awaits you just around the corner.

CLOVER LAWNS

W. F. W. Harding B.Sc. (Hort.)

I APPROACH my subject with some trepidation since I feel that the practice which I am going to advocate may appear to many to be a step in the wrong direction. As, however, I have seen with my own eyes its usefulness and effectiveness in the cemeteries of the Imperial War Graves Commission, by whom I have the honour to be employed, I feel confident that this practice can have a wider application.

In brief, I wish to recommend that for many purposes we should desert the standard of pure lawns and should intentionally introduce non-grassy elements in order to achieve certain advantages and overcome certain difficulties. The two elements which I consider can be most usefully mixed with the grasses are : White Clover (*Trifolium repens*)

and Yellow Suckling Clover (*Trifolium dubium*). These will give a dense green turf which will retain a good colour throughout the hottest periods of the summer and will, if necessary, help to cloak the relative unsuitability of certain soils for lawn formation. One may say that this is a lazy man's method of making a lawn and in one sense this is true. It is true in so far as one is choosing to work with Nature rather than against her, and thus Nature herself does half the work and bears half the cost.

At this stage one word of warning must be given. If your lawn is for the playing of ball games you should eschew these non grassy-additions. Similarly, if you are intent on your lawn closely resembling a golf or bowling green, you should continue to exercise the highest skill of your craft in demonstrating our national aptitude for this specialized horticultural work. It should be understood therefore that I am only making these suggestions for the benefit of the many thousands who have made, and are making, lawns for their general amenity and aesthetic value and who do not fall into either of the two special categories to which I have just referred.

This subject is, I feel, one of particular importance in view of the recent prominence assumed by selective weed-killers. It so happens that Clovers fall, broadly speaking, into the category of those turf "weeds" which are most resistant to complete destruction by selective weed-killers and in an endeavour to oust them finally from our lawns much wasted expense is in my opinion being incurred. Let us rather re-orientate our viewpoint and see Clovers, not as turf weeds but as an essential element of the turf itself. This process can, if desired and appropriate, be carried even further and other invaders such as Yarrow, Thyme, Chamomile, etc., can be welcomed as allies rather than repulsed as enemies. As I believe that lawns, as first made, only contained herbal elements and no grass, and as grass only crept in as a later addition, it is particularly illogical for us to have become such purists in this matter. As an example of the use of Yarrow, the Commission has, on sandy sites, sown many acres of seed mixture containing grasses, Clovers and Yarrow and the Yarrow has in the first summer secured the establishment of the other elements and thereafter it has receded to a secondary position. It must however be emphasized here that any seed mixture will reach a different equilibrium in different soils, and as the conditions alter from year to year so the equilibrium will not remain static. All I am concerned at the moment with suggesting is that we should be less conservative in determining the make up of our lawns and should give consideration to other elements than grass. In particular we should, if the use to which our lawns will be put allows it, give very serious consideration to the inclusion of Clovers.

In making this plea I do not claim to be breaking virgin soil, for this is very far from the case. On the Imperial War Graves Commission these mixtures have been used since shortly after the 1914–1918 War and it was on the basis of the technical experiments made by the firm of Messrs. Suttons & Sons Ltd., working in conjunction with the Commission's own Horticultural Officers that these mixtures were adopted. The Commission's Horticultural Officers, as specialists in the care of

turf, had visualized the great advantages to be gained from the inclusion of these Clover elements. No doubt also these mixtures are used in many other places. What I wish to do, however, is to publicize the success of these mixtures because I feel that they are capable of wider use than they at present enjoy, and that in these difficult times gardeners should change their practices to simplify their craft where this can be done without prejudice to the essential character and traditional beauty of our British gardens.

I have said earlier that the inclusion of Clovers represents a policy of working with Nature and I should like to expand this remark. On a relatively poor dry soil, where the grasses stand alone, they tend to assume during the summer a yellowy green colour if no irrigation is given, but, where a few plants of Clover have crept in, the change in colour of the grass plants growing amongst them is quite miraculous. They hold a healthy lively green without effort, presumably mainly due to the nitrogen fixing bacteria in the root nodules of the Clovers, but possibly partly due to the shade from the sun's rays which the Clover leaves give to the surface of the soil. Our Clovers have therefore, we see, replaced irrigation and partly replaced manuring. If we grant then that they have kept the lawn green the question may be asked whether we may not be losing something in general aesthetic effect. Will not in fact our so-called lawn now merely resemble a Clover field? This is a question, not purely horticultural, which the reader is certainly entitled to ask. I do not claim to be an authority on aesthetics, but I think I may say that the effect of a lawn depends primarily on two things. The first is its colour and the second is its texture. Of the two I should say that the colour is slightly the more important for the green of the lawn is the principal foil against which all the colour of our flowers must be contrasted. It would be idle nevertheless to pretend that texture is unimportant for without texture we tend to approach the effect of a football field or a meadow. Fortunately, however, by adopting these Clover turfs we are not called upon to sacrifice texture. Where the predominating grass seeds in the mixture are of the genera Fescue and Agrostis the resultant turf, after it settles down and after it has been subjected to regular mowing, gradually becomes very finely and pleasantly textured and the individual leaves of the Clovers become smaller and smaller.

In certain cases we have oversown established Fescue/Agrostis turfs with these Clover elements mixed with compost. To some this may seem to be sacrilege, but in these particular cases the original fine turfs had given a disappointing summer colour in the particular conditions prevailing and the resultant turf has been more than a justification for the rather ruthless policy adopted. Not only is the colour and texture first class, but the "pile" has become very thick and one obtains the feeling of a thick carpet beneath one's feet which is such a satisfying feature of a good lawn. The oversowing was done at the rate of approximately 20 lb. Yellow Trefoil, 34 lb. Suckling Clover and 5 lb. White Clover, New Zealand "Mother" seed to the acre, mixed with a carrier of compost. I am, however, dubious as to whether the inclusion of the Yellow Trefoil is of any real advantage, and this is a point on which I should like to experiment further.

Lastly I should like to examine the conditions for establishing and maintaining such a Clover turf. I hesitate to part company with the recognised turf experts, but with these particular turfs I feel that one cannot adopt the same manuring practices as for pure grass turfs and I do recommend that one manures for the benefit of the Clovers and leaves the grasses to be looked after by the Clovers. As in Agricultural practice so with us, basic slag has proved a most excellent, economical and suitable manure. A manure that has proved particularly useful on this turf has been blood and bone meal, but unfortunately its price restricts its use very severely. The maxim should be to keep your Clovers happy and they will keep the grasses happy. As far as possible all the grass and Clover mowings are composted and returned on to the turf in the form of top dressings.

I am afraid that I have only been able to touch on the subject very sketchily, nor can I claim to have carried out detailed controlled trials to prove my points, but hundreds of acres of fine turf in the cemeteries of the Imperial War Graves Commission all over Europe bear witness to the essential usefulness of different Clover turfs where economy of upkeep combined with the most effective results are the guiding considerations.

THE INFLUENCE OF THE COVERING SOIL ON THE PRODUCTION OF WITLOOF CHICORY

Allan A. Jackson

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THE quality of Witloof Chicory is affected by several factors. As perfect quality is required by the market these factors have been examined carefully by many workers and a comprehensive literature exists, covering the importance of strain, the temperature of forcing, optimum root size, correct time of lifting and method of harvesting (1).

There is, however, another factor, the nature of the covering soil, which receives little attention in the literature and yet has a remarkable influence on the quality of the crop.

In Belgium, Chicory is forced on a light sandy soil. Pits are dug about 8 inches deep, the roots are trimmed and placed in position and are then covered with the local soil which has been well cultivated and freed from stones. As the Chicory starts to grow the buds force their way through the soil and thus remain compact and white. Where Chicory is forced without covering soil a loose green plant is produced which has no market value. As tightness of bud depends on the covering soil it might be expected that soils of varying densities would produce chicons of different qualities. This appears to be the case.

In England, Chicory is often forced on soils which are much heavier than those in use on the Continent and furthermore other materials, such as peat and sand, are used.

To investigate the effects of various covering materials a standard unheated trench was prepared. Seven varieties of Chicory roots were placed in this trench, the varieties running lengthwise. It was then divided into three sections, one of which was covered with moist granulated peat, one with sand and the other with the local brick earth, which is rather a strong, silty loam. The whole trench was well insulated with straw and covered with corrugated iron in the usual way. The trench was filled on January 14 and opened on March 19.

Random samples of 40 chicons were lifted from each variety and each treatment, giving 21 samples in all. After weighing was completed careful observations were made on quality and ease of preparation for market. Finally the crop went to market in three lots according to treatment and the salesman returned his observations. When the crop was lifted it was immediately apparent that there were remarkable differences between the three treatments and these differences applied to all varieties.

TABLE 1

EFFECT OF COVERING MATERIAL ON WEIGHT OF WITLOOF CHICORY

Average weight per chicon in grammes

VARIETY	MOIST GRANULATED PEAT	FINE SAND	MOIST BRICK EARTH
Zwaans Late	166	97	91·5
Warchin Early	155	112	92·5
Zwaans Early	149	95·5	78
Zwaans Extra Heavy	170·5	108	96·5
Zwaans Extra Late	158	112	89
Bootloof	149	97·5	95
Improved Brabant	142	102·5	94

Weight. Peat produced a crop about 40 per cent. greater than sand. The weight from brick earth was slightly less than the weight from sand (Figs. 140 and 141).

Shape. Chicons from peat were large and rather looser than from the other treatments but the quality was good. Brick earth produced remarkably tight small chicons of perfect shape while from sand the crop was intermediate in shape between soil and peat and some of the chicons were rather curved.

Discussion. These differences in weight and compactness may probably be explained as follows. The weight per unit volume of sand and brick earth is about three times as great as that of peat. At the same time the compact nature of the local brick earth would enable it to exert a greater pressure on the developing bud than the sand.

Although the trial was considered to run at an average temperature of 42° F. there is no doubt that the peat is the best insulator of the three materials used. Temperatures taken daily for 18 days showed the temperature of the peat bed to be two or three degrees higher than the sand. The soil bed was slightly cooler than the sand. Thus the peat would be expected to produce the heaviest, most advanced and open buds by reason of the higher temperature and lower pressure. Soil would produce the most backward and tightest buds by reason of its lower temperature and higher pressure.

Effect on Market Quality. Chicory is prepared for market by stripping the outer leaves only. It is not washed or rubbed in any way.

When the samples from this trial reached the market they were examined by the salesman who reported that the chicons from sand all showed abrasions when the packs were opened. Tiny scars made by the sand when the crop was lifted had developed into large brown marks. The sand adhered to the chicons and might eventually find its way into the mouth of the customer.

The samples from peat were considered to be of good quality and although rather loose they reached the market in an attractive condition.

The samples from moist brick earth were of very good quality when lifted but they were dirty. As a result it was necessary to wash these chicons and they arrived in the market with brown hearts.

CONCLUSION

The nature of the covering soil has a marked influence on the quality of Witloof Chicory. If Chicory is to be grown economically in England the local soil must be of the light, well-drained type. This is the most suitable and the only economical covering material.

Brick earth in its natural, moist winter condition is not suitable for covering. Although it produces chicons of fine quality it is difficult to lift a clean crop. If brick earth is rotary cultivated and protected from winter rain it is quite satisfactory.

Sand produces a crop which is apparently clean which but rapidly deteriorates.

Peat produces good quality Chicory. Where this material is used it should be of the granulated light brown type. Over-oxidized black peat stains the chicons.

REFERENCE

(1) JACKSON, A. A. "Witloof Chicory." *Journal of The Royal Horticultural Society*, Vol. LXXVII. Part 2, February 1952.

WISLEY TRIALS, 1952

DELPHINIUMS

The trial of Delphiniums at Wisley was inspected by the Joint Committee of The Royal Horticultural Society and the British Delphinium Society on June 16 and June 27, 1952, when the following recommendations for Awards were made to varieties suitable for garden decoration.

The number in brackets after the description of the variety is that under which it was grown in the trial.

BONITA. (Raised, introduced and sent by A. T. Knight, Esq., White Ness, Clandon Road, West Clandon, Surrey.) **A.M.** June 16, 1952.—A Belladonna variety. 5½ feet tall; flower spikes 2 ft. long, blunt with many side spikes; very free flowering with flowers single, borne on long stalks, 2½ inches diameter. Petals Gentian Blue (H.C.C. 42) with flush of pale heliotrope; eye Gentian Blue (H.C.C. 42/1) with yellow hairs. [4]

DEREK HOTBLACK. (Raised, introduced and sent by H. S. Hotblack, Esq., Deakes, Cuckfield, Sussex.) **A.M.** June 16, 1952.—An Elatum variety.

6½ feet tall; flower spikes 2½ feet long, tapering with few side spikes. Flowers semi-double, 2½ inches diameter, outer petals a bright shade of blue between French Blue (H.C.C. 43/1) and Gentian Blue (H.C.C. 42/1), inner petals a clear bright shade of blue near Gentian Blue (between H.C.C. 42 and 42/1); eye inconspicuous, pale blue and white. [55]

DORA CAIRNCROSS. (Raised, introduced and sent by G. T. Cairncross, Esq., O.B.E., 54 Fitzjames Avenue, Croydon, Surrey.) **A.M.** June 27, 1952.—An Elatum variety. 7 to 7½ feet tall; flower spikes 3 feet long, slightly tapering with strong side spikes. Flowers semi-double, 2¾ to 3 inches diameter, outer petals Cornflower Blue (H.C.C. 742/2) touched Bishop's Violet (H.C.C. 34/1), inner petals Bishop's Violet (H.C.C. 34/1) with a brighter sheen; eye large, sepia with yellow hairs. [100]

GIGANTEA. (Raised, introduced and sent by Messrs. Blackmore & Langdon, Twerton Hill Nursery, Bath, Somerset.) **A.M.** June 27, 1952.—An Elatum variety. 8 to 8½ feet tall; flower spikes 3 to 3½ feet long, tapering, with many strong side spikes. Fowers semi-double, 2 inches diameter; outer petals Lobelia Blue (H.C.C. 41) inner petals Amethyst Violet (H.C.C. 35) at centre, shading to Lobelia Blue (H.C.C. 41) round edges; eye sepia with yellow hairs. [30]

PAPAVER NUDICAULE

Twenty stocks of *Papaver nudicaule* (Iceland Poppy) were received at Wisley for trial. They were inspected on June 5, 1952, by a sub-committee of Floral 'A' Committee, who made the following recommendations for awards.

The number in brackets after the description of the variety is that under which it was grown in the trial.

Flowers Single

Orange-Red Shades

BRILLIANCE. (Raised by Mr. A. G. Stark, introduced and sent by Messrs. Stark & Son Ltd., Fakenham, Norfolk.) **H.C.** June 5, 1952.—24 to 28 inches tall. Flower stems stiff, erect. Flowers single, 3 to 4 inches diameter, a bright shade of orange-red near Saturn Red (H.C.C. 13). [4]

Mixed Shades

GARTFORD GIANT. (Raised, introduced and sent by Mr. F. M. Danks, Gartref, 33 Balwyn Road, Canterbury, E. 7, Victoria, Australia.) **H.C.** June 5, 1952.—28 inches tall. Flower stems stiff, erect. Flowers single, 4 to 4½ inches diameter, mixed colours including cream, apricot, pale rose, cerise and pastel shades with some fringed darker colours. [13]

GARTFORD GIANT ART SHADES. (Raised, introduced and sent by Messrs. Bodger Seeds Ltd., El Monte, California, U.S.A.) **H.C.** June 5, 1952.—24 to 26 inches tall. Flower stems stiff, very erect. Flowers single, 3½ to 4 inches diameter, mixed colours including cream, yellow, biscuit, apricot, rose and deep rose. [14]

PARSLEY

A sub-committee of the Fruit and Vegetable Committee inspected the trial on April 10, 1952, and made the following recommendations for awards to varieties suitable for overwintering, in addition to the awards made in the summer of 1951. (See JOURNAL R.H.S. 77, 56.)

The number in brackets after the description of the variety is that under which it was grown in the trial.

Light Green

DOBBIE'S MOSS CURLED. (Raised by Mr. Robert Fife, introduced and sent by Messrs. Dobbie & Co. Ltd., The Scottish Seed Establishment, Edinburgh, 7.) **H.C.** April 10, 1952.—Plant vigorous, 5½ inches high with spread of 12 inches. Leaves 7½ inches long with stalk of 3½ inches, width 5 inches. A light green variety, the palest in the trial. [22]

Light-Medium Green

PERENNIAL MOSS CURLED. (Raised, introduced and sent by Messrs. Watkins & Simpson Ltd., 26–29 Drury Lane, Covent Garden, London, W.C. 2.) **A.M.** April 10, 1952.—Plant vigorous, 6½ inches high with spread of 11 inches. Leaves 7½ inches long with stalk of 3½ inches, width 5½ inches. Light-medium green. [25]

Medium Green

ANSGAR. (Raised, introduced and sent by Messrs. Chr. Olsen Ltd., Odense, Denmark.) **A.M.** April 5, 1952.—Plant vigorous, 6 inches high with spread of 12 inches. Leaves 8 inches long with stalk of 3½ inches, width 4 inches. Medium green. [15]

FERRY-MORSE EXTRA TRIPLE CURLED. (Raised, introduced and sent by the Ferry-Morse Seed Co., Mountain View, California, U.S.A.) **H.C.** April 10, 1952.—Plant vigorous, 5½ inches high with spread of 11 inches. Leaves 7½ inches long with stalk of 3½ inches, 3¾ inches wide. Medium-green. [13]

MEIN'S EXHIBITION RESELECTED. (Raised by Messrs. Stuart & Mein Ltd., introduced and sent by Messrs. Laing & Mather Ltd., Kelso, Scotland.) **H.C.** April 10, 1952.—Plant vigorous, 7 inches high with spread of 12 inches. Leaves 7 inches long with stalk of 3 inches, 4½ inches wide. Medium-green. [6]

PLANTS TO WHICH AWARDS HAVE BEEN MADE IN 1952

Rhododendron 'Akbar' A.M. May 20, 1952. This is a strong-growing hybrid from the cross *R.* 'Loderi' var. 'King George' and *R. discolor*. The heavy, flat-topped truss is made up of about twelve flowers each being 3 inches long and 5 inches wide and coloured Rose Madder (H.C.C. 23/2) with a small blotch of streaked crimson staining the throat. Exhibited by E. de Rothschild, Esq., Exbury House, Southampton.

Rhododendron arborescens var. 'Ailsa' A.M. June 10, 1952. A magnificent form of this widely grown, late-flowering species was shown. About ten flowers on long petioles make up each truss. The corolla is long funnel-form in shape, 1¾ inch long and 2 inches wide, pubescent, of good substance and coloured white with a small blotched yellow stain on the central lobe. Like the type it has a rich fragrance. Exhibited by Murray Adams-Acton, Esq., 37, Palace Gate, London, W. 8.

Rhododendron 'Arthuria' A.M. May 20, 1952. The parentage of this plant is *R.* 'Master Dick' and *R. Griersonianum*. It has dull green, mucronate leaves which are broadly lanceolate and measure 7 inches long and 2 inches across. The large globular truss is composed of about thirteen funnel-campanulate flowers each 3 inches long and 4½ inches across. The colour is Rose Madder (H.C.C. 23/1) which darkens

towards the throat while the upper three lobes show brown spotting. Exhibited by E. H. King, Esq., Embley Park School, Romsey, Hants.

Rhododendron 'Cinnkeys' Minterne var. (*cinnabarinum* × *Keysii*) **F.C.C.** May 20, 1952. A description of this plant appeared in R.H.S. JOURNAL **76,** 419, after it had received an **A.M.** in 1951. Exhibited by Lord Digby, D.S.O., M.C., Cerne Abbey, Dorchester, Dorset (Fig. 136).

Rhododendron 'Gwilt King' A.M. May 20, 1952. This is a vigorous hybrid resulting from the cross *R. zeylanicum* and *R. Griersonianum*. The inflorescence is gathered in a flat-bottomed, semi-circular truss. Deep basal nectaries are seen in the corolla which is 2½ inches long and 3 inches wide and coloured Turkey Red (H.C.C. 721/2) with some spotting on the upper lobe. The thick leaves are 8 inches long and 2¾ inches wide; olive green above and beneath coated with a dense indumentum. Exhibited by Lord Digby, D.S.O., M.C., Cerne Abbey, Dorchester, Dorset.

Rhododendron 'Lord Stair' (*Taggianum* × *Lindleyi*) **A.M.** April 29, 1952. A richly-scented shrub for the cool greenhouse. Some scattered scales are found on the underside of the broad-lanceolate leaves and a heavy scaling on the petiole. Flowers are in clusters of three, four or five; and each one is large and semi-pendulous on a stout, scaly pedicel. The calyx is leafy and the corolla, measuring 3½ inches in length and 1½ inches across, is pouched. At the base of the upper two lobes is a pale orange stain against an otherwise white flower. Exhibited by The Rt. Hon. The Earl of Stair, D.S.O., K.T., Lochinch, Stranraer, Wigtownshire.

Rhododendron 'Moonshine' A.M. April 29, 1952. This is a fine, new hybrid made at Wisley by crossing *R.* 'Adriaan Koster' and *R. litiense*. The truss is compact, dome-shaped and composed of about sixteen flowers. These have a shallow-rotate shape, are 1½ inches long and 2½ inches across, emarginate and lightly frilled at the edges. The throat is stained with a dark crimson blotch against Primrose Yellow (H.C.C. 601/2–601/3) that darkens somewhat on the upper lobe. Exhibited by The Director, R.H.S. Gardens, Wisley, Ripley, Surrey.

Rhododendron 'Querida' A.M. April 29, 1952. A plant with the parentage of *R.* 'Red Knight' × *R. Elliottii*. About sixteen flowers make up the globular truss. The corolla is 3 inches long and 3¼ inches across, has deep basal nectaries and is an intermediate shade of Carmine (H.C.C. 21/1–21) with some light brown spotting on the upper three lobes. The oblong-lanceolate leaves are 10 inches long and 3¾ inches wide on a thick petiole 2 inches long. Exhibited by E. de Rothschild, Esq., Exbury House, Southampton.

Rhododendron 'Whiteway' (**'Loder's White'** × **'Mrs. Lindsay Smith'**) **A.M.** May 20, 1952. The large flowers of this plant are borne in a lax, flat-topped truss. The corolla is 2½ inches long and 4 inches across and has the characteristic, frilled margins of the putative *R. Griffithianum* × *R. arboreum album* hybrid. On the upper lobe there is a faint, pale yellow blush against an otherwise white background. The leaves are oblong-lanceolate, 6 inches long and 2½ inches across. Exhibited by Lord Digby, D.S.O., M.C., Cerne Abbey, Dorchester, Dorset.

BOOK NOTES

"Twentieth Century Gardening." By Charles Eley. 288 pp. Illus. (Country Life.) 25*s.* 0*d.*

This is the third edition of Mr. Eley's great book, first published in 1923. Its endeavour, its author states, is to "interest beginners in the most satisfying form of gardening and if possible to induce the migratory occupier of a garden to leave behind him in every case some lasting memorial to his passage." Fortunate indeed was he who, when making his garden, had it as a *vade mecum*; he who was not so fortunate will surely do the next best thing and adopt it as a bedside book for its inspiration, learning and wit. Everything that can and need be said in one volume on the planning and preparation of gardens, of planting them with trees and shrubs, and of their subsequent management is said in this scholarly and lively work. To praise it would be an impertinence, it can only be acclaimed a monument of good garden taste and practice.

The book is illustrated with photographs magnificent alike in their quality and the wide prospects they portray. Here alone does doubt assail the reviewer. It will be seen that permanence is the key-note of Mr. Eley's inspiring conception of gardening. Permanence, it is to be deplored, is hardly a characteristic of contemporary English life, and its absence is likely to militate against Mr. Eley's noble ideal of planting for the future. To-day, planting for the future, even for those who may still be able to garden on a spacious scale, does not mean planting for one's grandchildren, but more likely for the area headquarters of a nationalized industry or the occupants of a "prison without bars." However, this will not deter the man who has the planting and tending of living things in his blood, be his ground great or small, and his garden will be the better and his country the richer for his having read and re-read Mr. Eley's book.

MORTON

"The Horticultural Exhibitors' Manual." Edited by A. G. L. Hellyer. 8vo. 335 pp. Illus (W. H. & L. Collingridge, Ltd.) 1952. 21*s.*

The book opens with a chapter by Mr. Hellyer on the drafting of show schedules which should be helpful to show secretaries as well as exhibitors, for it draws attention to many of the points which commonly present judges with problems of interpretation and cause confusion and disappointment to competitors. The greater part of the book consists of chapters by fifteen well-chosen experts who deal with Annuals, Border Carnations, Perpetual-flowering Carnations, Chrysanthemums, Daffodils, Dahlias, Gladioli, Pansies and Violas, Hardy Herbaceous Plants, Rock Plants, Roses, Shrubs and Trees, Sweet Peas, Fruit, and Vegetables. Each contributor gives not only valuable advice about the selection and staging of exhibits, but also about their cultivation, drawing particular attention to those important details which result in the difference between what is ordinary and what is likely to find favour with the judges at a competitive show. There is also an instructive chapter entitled "Decorative Classes." The editor expresses the opinion "that exhibiting provides some of the greatest pleasures that gardening can give." To anyone who proposes to participate in those pleasures this book should be helpful.

"The Victorian Flower Garden." By Geoffrey Taylor. 212 pp. Illus. (Messrs. Skeffington & Son, Ltd.) 12*s.* 6*d.*

This vastly entertaining book is also an important one, for besides providing much delicious reading, it makes available a mass of information not otherwise readily accessible. Personalities of Church, Parliament, Bar, Stage, Turf, Cricket-field, all have had their chroniclers, and now in Mr. Geoffrey Taylor has arisen an historian of a perhaps even more characteristic aspect of the national genius, namely, the English passion for gardening. Thus, he has followed his study of "Three Victorian Gardeners"—James Loudon, William Robinson and Reginald Farrer—with an account of the personalities and practice of horticulture in the last three-quarters of the 19th century. He has every qualification for the task, an erudite knowledge of his subject and its literature, sound historical judgment and a keen sense of the ridiculous. May it be said that he does for the Victorian garden what Lytton Strachey did for the great Queen in whose tranquil and triumphant reign it blossomed so abundantly? But he is a kindly Strachey, and shares the generous and tolerant spirit of all those who truly love plants everywhere.

Mr. Taylor guides us with wit and wisdom through all the phases of Victorian gardening, of which "bedding out," though the most notorious and aggressive, was quite the least important. Dean Herbert, great authority on bulbous plants and monographer of the Amaryllidaceae, Dean Hole, great 19th-century grower and propagandist of roses, Canon Ellacombe, father of modern English gardening (incidentally, how much does gardening owe to dignitaries of the Established Church), Mrs. Earle and

Miss Ellen Willmott are some of the great figures in these pages, and by clothing them with personal details he turns the mere recording of facts into the writing of history.

For all its great learning the book is short, and one can only hope that Mr. Taylor will continue and far extend his researches into the history of the personalities and practice of gardening in England.

MORTON

"The Simple Garden." By Phoebe Fenwick Gaye. 135 pp. Illus. (Phoenix House Ltd.) 9*s*. 6*d*.

To call a book charming might appear to depreciate its practical value. This is certainly not so of Miss Fenwick Gaye's *The Simple Garden*, which is full of useful advice to all those who are making a new garden, or have come into possession of an old one, and who are determined to indulge their desire to garden, in spite of all the difficulties of these times. Miss Fenwick Gaye fully understands all the problems involved and offers many practical and ingenious suggestions for coping with them. Moreover she writes in so agreeable a style that those who consult her book will not only obtain a lot of valuable help but also enjoy some very pleasant reading.

MORTON

"The Labour Saving Garden." By Richard Sudell. 96 pp. Illus. (Ward Lock & Co.) 9*s*. 6*d*.

Those who are about to make a garden may peruse this book with interest. It treats of the selection and construction of different types of gardens which will be labour-saving and of other means of promoting this end, as necessary in the garden as elsewhere. There are, however, other controlling factors besides shortage of labour in the present-day garden, and it may seem that some of the author's suggestions would involve expenditure higher than many can afford.

MORTON

"Irises and their Culture." By Jean Stevens. 168 pp. Illus. (Lothian Publishing Company Pty. Ltd., Melbourne.) 45*s*.

Two books on Irises have appeared in this country since the war and at least two in the United States, not to mention the *Year Books* of the British Iris Society and the quarterly *Bulletins* of the American. Another therefore might seem to be redundant, but the publication of the first book on Irises in the Antipodes is something of an occasion, and this book is worthy of it.

Mrs. Stevens has grown Irises in New Zealand for thirty years and is the raiser of a number of well-known tall-bearded varieties. An English reviewer will not presume to comment on the cultural directions for Irises in New Zealand and Australia, beyond remarking that they deserve study as possibly throwing light on problems of Iris growing elsewhere. Mrs. Stevens has, of course, covered much familiar ground, but she has covered it well. She deals, it would appear most competently, with the great problem of gardeners in Australia and New Zealand, namely, that of the acclimatization of plants imported from the Northern Hemisphere. The breeding of tall-bearded Irises is thoroughly treated, and the section on Iris species seems, for a book which only claims to help amateur gardeners, to be exceptionally comprehensive and good.

Some confusion on page 68 requires clearing up. The Joint Iris Committee of The Royal Horticultural Society and the Iris Society meets on every Show day during the Iris season and at the Iris Society's Show. Selection of a tall-bearded variety for trial at Wisley is not an award, but an Award of Merit may be given after trial there. The Dykes Medal is an award made by the Iris Society and is nothing to do with The Royal Horticultural Society.

The numerous monochrome plates, all from photographs of plants flowered in Mrs. Stevens' own garden are greatly to be commended for their help to the amateur anxious to improve his knowledge of the genus and provide an example to be followed with advantage in similar books about other genera.

Even allowing for the lower value of the Australian £1 in relation to our own, at 45*s*. this book seems highly priced.

MORTON

"British Plants and their Uses." By H. L. Edlin. viii + 152 pp. Illus. (B. T. Batsford Limited) 15*s*.

Few authors have attempted a comprehensive account of the uses of our native plants. In spite of the fascination of the subject the plants and their virtues are so numerous that it is difficult not to drift into mere cataloguing, the more so when years of study and observation have been spent in acquiring the knowledge necessary for the task. Mr. Edlin rarely falls into this pitfall yet he is not so much at home as he

was in his earlier book on Woodland Crafts. Some of the best passages are those relying on personal experience, such as the account of the building of a turf wall (p. 141). Many plants alien to our flora are included, with some justification, though the rather long accounts of the Potato and Tomato are incongruous, when the culinary virtues of the Reedmace, *Typha latifolia*, are omitted. Rarely can one cavill at the accuracy of the information presented, but few are likely to agree that the Chickweed, *Stellaria media*, with its rather earthy flavour, is "quite pleasant to eat." Nor, in the reviewer's experience, is it relished by chickens and rabbits as suggested. Errors are commendably few, considering the wide range of the subject-matter. There are occasional lapses into loose phraseology, like the statements that "Mediterranean squill . . . contains in its bulbs the drug *scilla* . . . ; it is also known as 'Syrup of squills"' The book is well illustrated, partly by photographs and partly by line drawings. Of these, the photographs are by far the more satisfactory, especially where they depict rural operations in progress. Many of the line drawings come from Gerrard's Herbal, in which they were, even then, secondhand. In recent years we have had a surfeit of such drawings, aimed, apparently, at producing an 'olde worlde' effect. Some modern line drawings possessing both verve and accuracy would be a relief. In conclusion, may it be said, Mr. Edlin has produced a book that is both entertaining and informative and one that should find a place on the shelves of every lover of the countryside.

B. MELVILLE

"Science in the School Garden.' By Mary A. Johnstone. 176 pp. Illus. (Macmillan.) 4*s*. 6*d*.

A school garden, like every other garden, provides plenty of scientific problems connected with the life of plants, and anyone knowing of Miss Johnstone's career as a teacher and her experiments as a practical gardener will realize that she will readily gain the interest of school children who may read her book. What an enormous field for observation and investigation a garden presents, nothing less than the whole of vegetable morphology and physiology as well as the structure and habits of many insects useful or harmful to plants, if one includes these in one's survey as the authoress does. Miss Johnstone has an engaging way of enlisting the interest of her young readers and is sure to lead them, not only to think over the problems, which work in the garden will raise in their minds, but also to carry out such simple experiments as she urges them to undertake. She continually advises them to prove the correctness of her explanations.

In connection with the pollination of flowers she has an excellent, well-illustrated chapter on the structure and habits of the honey bee. The other illustrations in the book are likewise good and helpful. The chapter entitled "We Feed the Soil" gives not only information on chemical manures but also on the prime need for adding to the soil humus with its useful bacteria. Her account of the help rendered by nitrifying bacteria to leguminous plants gives an opportunity for discussing the rotation of crops and the authoress describes some of her own experiments. She is not afraid of giving instances where her expectations were not fulfilled. As she tells her young readers, it is one of the lessons that have to be learnt in gardening, that we must search for reasons for our failures.

We can wholeheartedly recommend this book to all young people who are privileged to work and learn in a school garden. The book will also be found useful to the candidates who are preparing for the R.H.S. Examinations for Teachers, as they will find plenty of hints given by an experienced teacher and an enthusiast for scientific gardening.

F. E. WEISS

"More Pictures with Flowers." By Julia Clements. 63 pp. Illus. (Geo. Newnes, Ltd.) 10*s*. 6*d*.

In this book, containing 50 photographs of Flower Arrangements, there is certainly a varied assortment of styles and of ideas. Many of them are in good taste and among the best are those on pages 15, 17, 19, 28, and 46 all of which show restraint and thought in the setting up. As can be seen in these a really pleasing arrangement can be made with a few blooms and some foliage, whereas on page 59 the mass of mixed flowers contains so much that it appears to be top heavy, and however firm it may really have been, looks as if a slight touch of the table would topple the whole thing over. The Art of making a picture with flowers (if Art it be) surely requires an appreciation of quality and design and not just quantity of material.

FRANK GALSWORTHY

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Cultural Commendation

To The Director, R.H.S. Gardens, Wisley for a well-grown plant of *Hypericum ericoides* (votes 6 for, 0 against), and for a well-grown plant of *Limonium caesium* (votes 10 for, 0 against). The second plant was referred to the Scientific Committee.

Other Exhibits

Calandrina umbellata, *Collomia debilis* and *Salvia blepharophylla* from Messrs. Kibble and Clare, Ltd., Ascot Wood Nurseries, Ascot, Berks.

Campanula lanata from F. M. Peacock, Esq., Lowlands Cottage, Tritton Avenue, Beddington, Surrey.

JULY 22, 1952

SCIENTIFIC COMMITTEE—Mr. E. A. Bowles, M.A., F.L.S., F.R.E.S., V.M.H., in the Chair, and five other members present.

Picrasma quassioides—Mr. Gilmour showed from the Cambridge Botanic Garden a fruiting specimen of *P. quassioides* (synonym *P. ailanthoides*) a member of the Simarubaceae. He described it as having the bitterest bark of any plant he knew. The fruit is a collection of drupelets with a persistent calyx like a Raspberry. At Cambridge it has grown into a tree of 20 ft. and the red petioles and red rachis of the leaf makes it a decorative plant. Dr. Turrill undertook to investigate whether this plant had been featured in the *Botanical Magazine*.

A White Escallonia—Mr. Gilmour also brought a specimen of a white-flowered Escallonia for identification. The Committee identified it as *Escallonia* × 'Iveyi,' a hybrid raised at Caerhays Castle and named after Mr. J. C. Williams' head gardener.

Striped Antirrhinums—Dr. L. G. G. Warne of the University of Manchester sent specimens of Antirrhinum in which the flowers were streaked and striped in the manner of some "Broken Tulips." The Committee felt that the flowers were not very attractive from the horticultural point of view but of interest from the scientific aspect and asked that information should be obtained from Dr. Warne about the history and origin of the flowers.

Insect Gall on Rubus—Mr. Howard H. Crane sent a species of Rubus attacked by an Insect Gall. The specimen was referred to the Entomologist at Wisley.

Apple Malformation—Mr. Crane also sent specimens of Apple showing scabby malformations and suggested that they might have been attacked by Capsid Bug. These were also referred to the Entomologist at Wisley.

Glaux maritima—Mr. J. Wilson sent for identification a specimen which had been found in a Cumberland turf. This was identified as *Glaux maritima*, which is a native of grassy salt marshes and other districts, generally close to the sea.

Cherry Suckers.—Mr. E. A. Bowles brought suckers of Cherry derived from stock on which a large *Prunus Sargentii* was grafted. He considered these were derived from *P. acida*, which is very closely allied to *P. Cerasus* and which some authorities consider to be synonymous with *P. Cerasus*. This species suckers freely, especially when the roots are damaged. Unfortunately this plant was often confused by nurserymen with *P. avium* which does not sucker so freely and which is a much more desirable stock. This stock should be raised from seed. The Committee desired that attention might be drawn to this matter and that nurserymen should be recommended to use *P. avium* rather than *P. acida* as a stock.

FRUIT AND VEGETABLE COMMITTEE—Mr. F. A. Secrett, C.B.E., F.L.S., V.M.H., in the Chair, and eight other members present.

Awards Recommended:

Award of Merit

To Black Currant 'Amos Black' as a late-ripening variety (votes unanimous), raised by Mr. H. M. Tydeman at East Malling Research and shown by The Director, The National Fruit Trials, Wisley.

Recommended for Trial at Wisley

Peach 'Roy's Wonder' exhibited by Thomas Grainger, Esq., 73 Pine Gardens, Surbiton, Surrey.

Recommended for Observation at Wisley

Apple 'Wickham Green' exhibited by Messrs. Pope Bros., Barkham Ride Nurseries, Wokingham, Berks.

FLORAL COMMITTEE A—Mr. W. Austin, M.B.E., in the Chair, and nineteen other members present.

Awards Recommended:

Silver-gilt Banksian Medal

To Messrs. H. Woolman, Ltd., Birmingham, for an exhibit of Begonias.

Silver Flora Medal

To Messrs. John Waterer Sons & Crisp, Ltd., Twyford, for an exhibit of Phloxes.

Silver Banksian Medal

To Messrs. M. Prichard & Sons, Ltd., Christchurch, for an exhibit of herbaceous plants.
To S. E. Neville Webb, Esq., Peacehaven, for an exhibit of Gladioli.

Flora Medal

To Messrs. Wheatcroft Bros., Ltd., Ruddington, for an exhibit of Roses.

Banksian Medal

To Messrs. B. R. Cant & Sons, Ltd., Colchester, for an exhibit of Roses.
To Messrs. T. Carlile, Ltd., Twyford, for an exhibit of herbaceous plants.
To Mr. E. B. Le Grice, North Walsham, for an exhibit of Roses.

Award of Merit

To Hybrid Polyantha Rose 'Red Favourite' (votes 11 for, 5 against) from Messrs. Wheatcroft Bros., Ltd., Ruddington, Notts.

Selected for Trial at Wisley

Hemerocallis 'Apricotta,' 'Doubloon,' 'Evelyn Claar,' 'Fay 49-9,' 'Fay 49-9½,' 'Mission Bells,' 'Painted Lady,' 'Pink Damask,' 'Pink Radiance,' 'Purple Finch,' 'Seedling 210,' 'Seedling 214,' 'Red Perfection,' 'Royal Ruby,' 'Ruby Supreme,' from H. J. Randall, Esq., C.B.E., Brooklyn Road, Woking.

To be seen again

Rose 'Cocorico' from Messrs. Wheatcroft Bros., Ltd., Ruddington, Notts.

Other Exhibits

Antirrhinums from Dr. L. G. G. Warne, Manchester (referred to Scientific Committee).
Pelargonium from Mrs. Symons-Jeune, Old Windsor.
Violas and Roses from Mr. C. A. Jardine, Feltham.

FLORAL COMMITTEE B—Lord ABERCONWAY, C.B.E., LL.D., D.Sc., V.M.H., in the Chair, and fifteen other members present.

Awards Recommended:

Flora Medal

To Messrs. Robinson, Eltham, for an exhibit of rock garden plants.

Banksian Medal

To Messrs. Burkwood & Skipworth, Ltd., Kingston, for an exhibit of flowering trees and shrubs.
To Messrs. East Lodge Gardens, Enfield, for an exhibit of rock garden plants.
To Mr. C. Gilbert, Romford, for an exhibit of Cactus and succulent plants.

Lindley Medal

To M. Haworth-Booth, Esq., Haslemere, for an exhibit of Hydrangeas.

Other Exhibits

Abutilon × *Millerii* from Sir Henry Price, Wakehurst Place, Ardingly, Sussex.
Hydrangea macrophylla var. 'Veitchii' from Michael Haworth-Booth, Esq., Farall Nurseries, Haslemere, Surrey.
Clipped trees, exhibited by Messrs. Kew Topiary Nurseries, Ltd., Richmond.
Gentians, exhibited by Mr. C. Newberry, Knebworth.
Lilies, exhibited by Messrs. R. Wallace & Co., Tunbridge Wells.

JOINT BORDER CARNATION COMMITTEE—Mr. T. H. HAY, C.V.O., V.M.H., in the Chair, and eight other members present.

Selected for Trial at Wisley

'Lynda Riley' shown by Ivan L. Barker, 80 Peel Crescent, Bull Farm, Mansfield.

Other Exhibits

Seedling Border Carnation shown by Ivan L. Barker, 80 Peel Crescent, Bull Farm, Mansfield.

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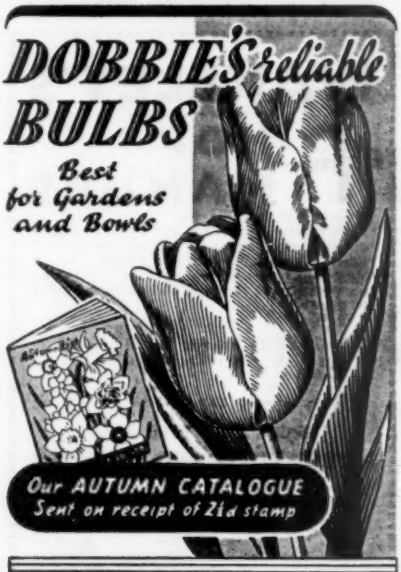

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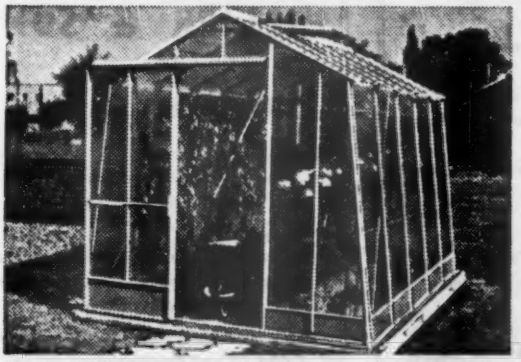

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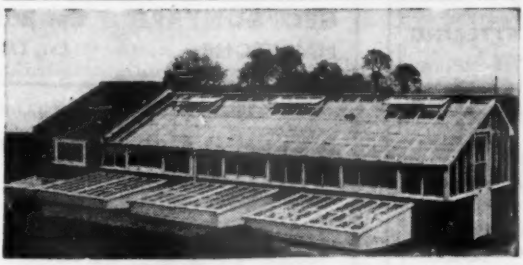

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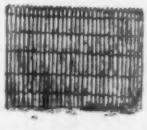

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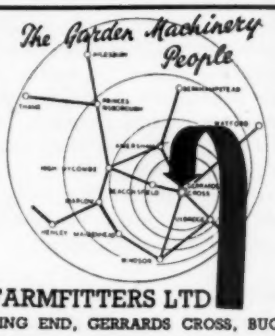

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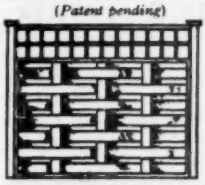

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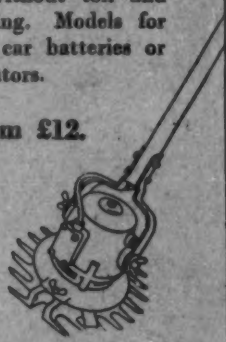

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